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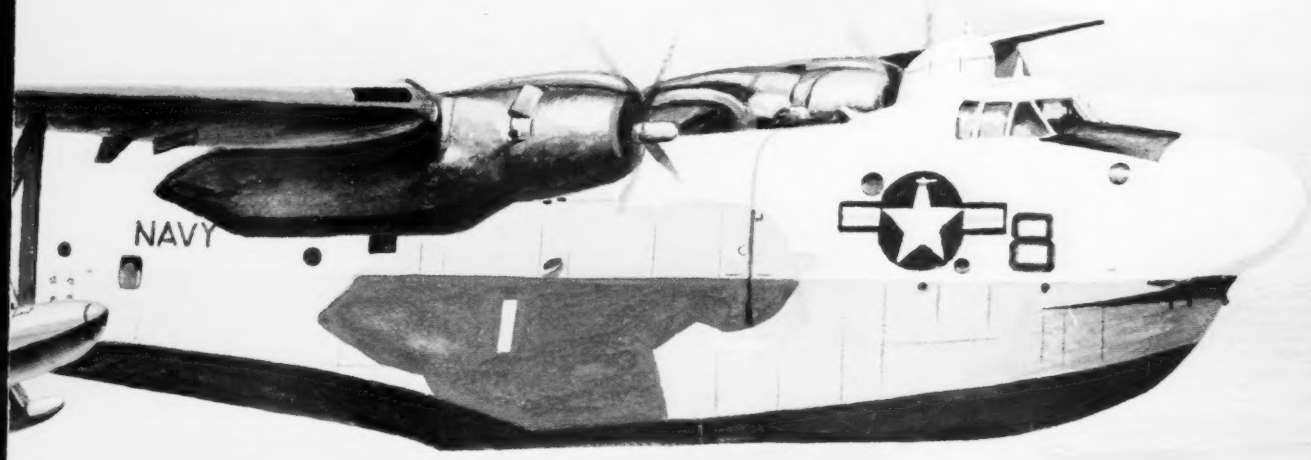
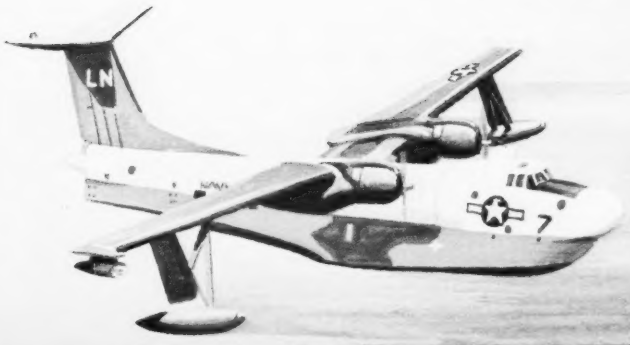
approach

JANUARY 1975 THE NAVAL AVIATION SAFETY REVIEW





B. Rader

Be a Weight Watcher

AN A-7B was night-launched from a CVA with catapult steam pressure set for 30,000 pounds when, in fact, the aircraft weighed 36,000 pounds. The result was flying speed minus 7 knots off the bow.

The aircraft impacted the water in a wings level, flat attitude approximately 200-400 yards ahead of the ship following repeated calls of "Keep it climbing" from the assistant air boss and "Climb" from the ship's commanding officer. No ejection attempt was observed. The aircraft appeared to explode in a small fireball upon impact. Very little aircraft debris was recovered.

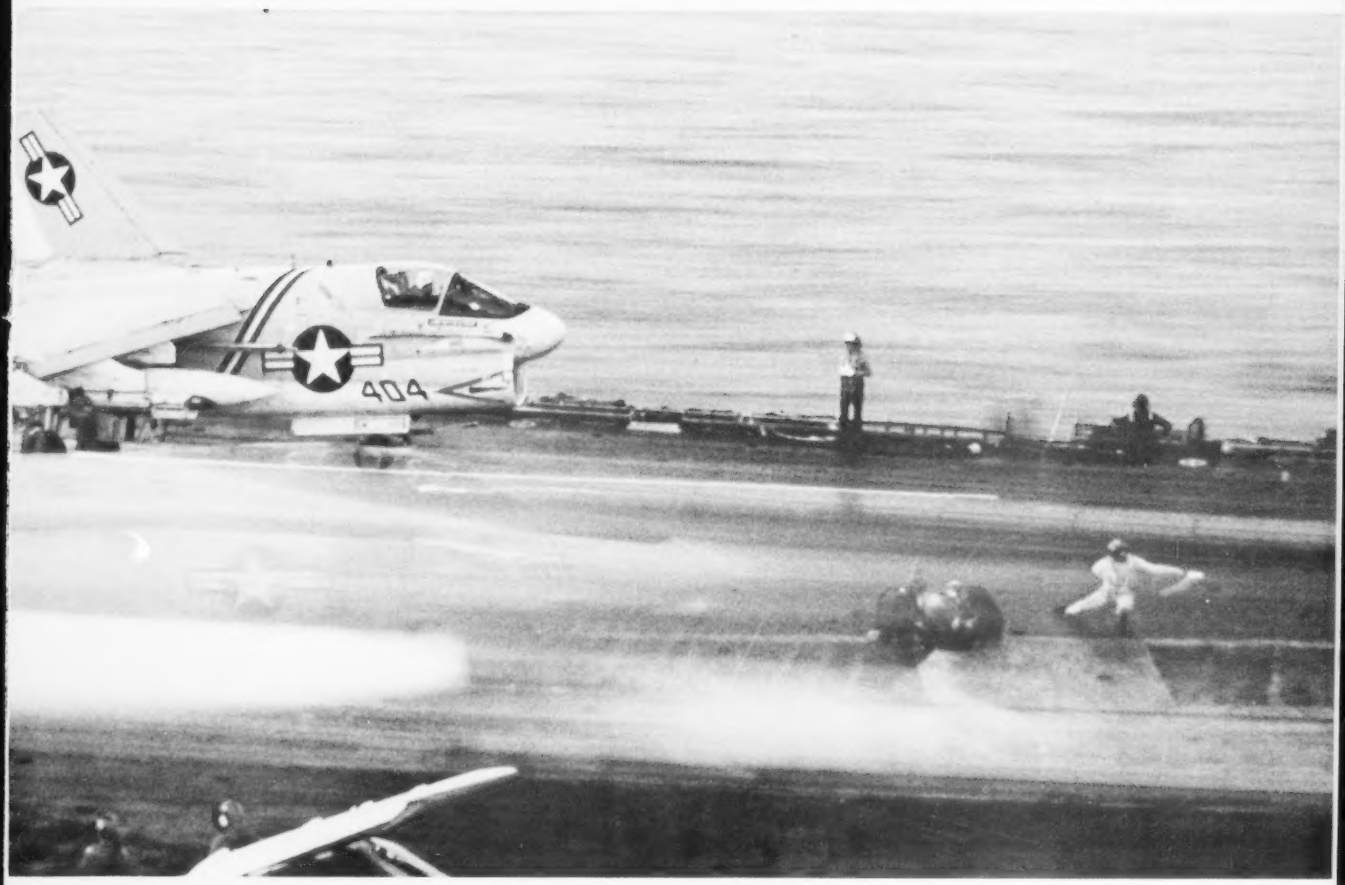
The aircraft involved was a tanker-configured aircraft. Although normal procedure on this ship is for the tankers to be launched first, in this case, several other aircraft were launched prior to the tanker. This was due to the tanker being one of the last aircraft to be respotted following the last recovery.

Fueling was still in progress when the pilot preflighted his aircraft. Fueling was stopped while he started the aircraft and then completed during the poststart checks. Although flight deck personnel stated that the launch was proceeding very smoothly and that they did not feel rushed, it is possible that the pilot felt he was under pressure to complete his preflight launch procedures as quickly as possible – knowing he should have been first to launch.

When the pilot stopped behind the starboard jet blast deflector, the weight board checker attempted to show the pilot 30,000, which was not acknowledged. The checker then repositioned himself next to the taxi director just forward of the jet blast deflector. The pilot then verified 30,000 just as he started to taxi. The pilot had not written the gross weight of the aircraft on the nose gear door.

Several possibilities exist as to why the pilot "rogered" an incorrect gross weight:

- The normal gross weight of an A-7B without ordnance is 30,000 pounds. It is possible that the pilot forgot for a moment that he was tanker configured and,



through habit, rogered 30,000.

- If he was preoccupied with following the taxi director or with last minute tasks in the cockpit, he may not have actually read the weight board, but only given it a cursory glance.
- Because of fatigue and/or the anxiety inherent in a night catapult shot, particularly in a tanker aircraft, the pilot may have replaced a zero with a six and saw in his own mind 36,000. Fatigue is a suspected factor. The pilot had two flights in the previous 24 hours with 7 hours or less of sleep the night before.

The standard procedure was for the weight sheets to be filled out by the squadron duty officer, verified by each pilot, and taken to flight deck control by the junior officer in the flight. The pilot involved in the accident was the junior pilot in this case, and he had taken the weight sheets to flight deck control, as required.

The catapult officer usually accepted the weight sheets in flight deck control. He would then transfer the gross weights from all series aircraft onto one sheet of paper. The gross weights would be indicated by aircraft series rather than specific side number. For gross weights different from the others in that particular series, the gross weight and the aircraft side number would be indicated. The cat officer would give his weight sheet to the weight board checker during the prelaunch brief. The weight checker was supposed to transfer this information to the Plexiglas sheet on the back of the weight board. This was not always done, sometimes not even during night operations. Furthermore, this sheet was seldom checked by the cat officer.

On this launch, it was not checked. The weight checker retained the one copy of the weight sheet. This left the launching officer with no written reference of aircraft side numbers and corresponding gross weights. When the checker displayed 30,000 pounds at center deck control, the control operator and launching officer "rogered" the signal. The catapult then proceeded with the launching of an A-7 aircraft on the port catapult.

After firing the plane on the port catapult, he turned to the "accident aircraft" now taxiing to the starboard catapult. He noted the center deck operator had one

finger on 30,000 for gross weight and one finger on 320 psi. The steam pressure gage showed 320 pounds. The catapult officer failed to note the discrepancy between aircraft configuration and steam pressure selected, although he did notice the tanker configuration of the *Corsair* as it taxied forward. No question concerning the steam pressure had come to his attention. Following a scan forward, he fired the aircraft at 320 psi, resulting in minus 7 knots end speed for the tanker-configuration aircraft.

Investigation revealed that written procedures for the weight board checker were nonexistent. Instructions concerning this catapult station were limited solely to a V-2 division instruction. The man concerned had not been qualified in writing for his station as weight checker. He had been given minimal instruction. His indoctrination consisted of following the previous checker through the job for half a day before being verbally qualified by the V-2 division chief.

Poor procedures had been established to ensure that the weight checker showed the correct gross weight to the pilot. Gross weight changes made by the pilots were common. Sometimes it was because of the pilot's decision, based on changes in fuel weight, changes in ordnance load, or fuel burndown after manning the aircraft. Nevertheless, changes made by pilots because of errors by the weight checker did occur. Two such gross weight changes were made on the same launch prior to the accident.

These poor procedures were further evidenced by the fact that 30,000-pound indications were shown by the weight checker to two tanker aircraft two nights following the accident. The weight checker for the first aircraft was the same as that for the accident aircraft. He was immediately relieved by the previous checker who then made the second such error with another aircraft. This occurred even though the aircraft side numbers and gross weights were correctly written on the back of the weight board. Also, the gross weights for both aircraft were indicated correctly on each nose gear door in accordance with NATOPS procedures adopted after the accident. The weight board checkers did not follow the procedures of verifying side numbers of aircraft with those on the weight board. That improper weights were shown at least three times following the accident indicates inattention on the part of supervisory personnel.

The frequency of errors made by the weight checkers should have been reported by air wing pilots. Inadequate attention was probably given by the pilots to the correction of these errors. Had any individual noted this, either in a memorandum, at a safety meeting, or in discussions with supervisory personnel, action might have been taken to correct the faulty weight board procedures at a much earlier date.

A violation of NATOPS is evident. The CVA/CVS NATOPS Manual, Section IV, pg. 4-2, under MANNING AIRCRAFT, states: "He (the pilot) shall also write the

Added Emphasis

AT SEA on a forward deployed carrier. Involved were a new Ensign RIO about to take his first cat shot, a second cruise LTJG pilot, and one 48,000 pound gross weight F-4N. The mission was to launch, burn down to landing weight, and conduct carrier quals.

Most of the other aircraft spotted for the same launch had partial fuel loads as only carquals were to be conducted, however, this aircraft was fully fueled (internal and centerline) because it had been in "alert" status the previous evening.

The crew knew what the fuel load was, knew the proper gross weight, knew they would need an afterburner cat shot (basic engine is satisfactory for qual weight shots), and were expecting a heavy shot. While taxiing to the catapult, a weight board was shown to the crew. *Mistake No. 1:* The board read 37,000 pounds. *Mistake No. 2:* The RIO acknowledged 37,000 pounds and notified the pilot. *Mistake No. 3:* The pilot agreed (complacency?). The aircraft was tensioned on the catapult, engines run up to full MILITARY. The pilot expected a burner signal from the cat officer, not realizing he'd acknowledged a qual gross weight. The cat officer expected a salute, thinking the aircraft was qual gross weight. *Mistake No. 4:* The pilot raised his hand to indicate to the cat officer that he wanted a burner shot.

Fortunately, the cat officer did not interpret this as a launch signal from the pilot. Some confusion ensued and the pilot radioed the air boss and verbally asked for a burner shot. When the air boss replied, asking what the gross weight was, the mistake was uncovered.

All precautions were taken. Complacency on the part of the aircrew and confusion on the part of the deck crew caused this, and had the aircraft been launched, it would have been below stall speed at the end of the stroke and would have been lost. No doubt about it!

ASO Anymouse

correct gross weight of the aircraft in the designated space." Also, the NATOPS Flight Manual for A-7A and A-7B aircraft, Section III, pg. 3-29, under DAY OPERATIONS, Preflight, states: "Record the expected gross weight of the aircraft for catapult launch on each nose gear door." This was not done by the accident pilot nor was it an established air wing procedure.

During a past Operational Readiness Exercise, the air department was noted for this violation by the Assistant Chief Inspector. The comment was "Aircraft gross weights are not written on the aircraft prior to launch," and a recommendation was made to comply with CVA/CVS NATOPS requirements under "Manning of Aircraft." The correct procedure was adopted for a short time, but only during the ORE period. Negligence and lack of coordination by all personnel concerned – the ship's air department, the air wing, and individual pilots – are the apparent reasons this policy was discontinued.

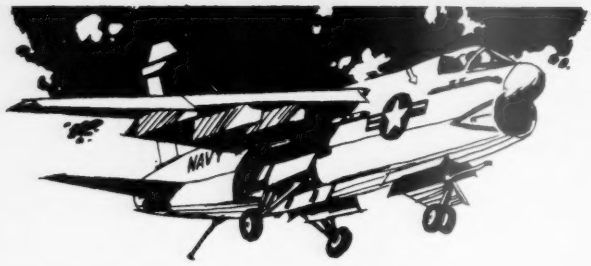
As a result of this accident, the aircraft mishap board recommended, in part:

1) That compliance with NATOPS procedures be enforced concerning gross weights written in the designated area on the aircraft prior to launch. This should be written on the aircraft by the pilot only, as directed in both CVA/CVS and A-7B NATOPS.

2) That adequate training procedures and qualification standards be established for the weight board checker as well as for all stations of the flight quarters organization. Exact procedures detailing specific instructions for the weight board checker prior to and during the launch evolution should be established.

Finally, it was recommended that sufficient coordination be established between the air department and air wing personnel to minimize gross weight errors made by the weight checker. Because of the serious consequences of launches at incorrect weights, any change in gross weight on the weight board that are unexpected by the pilot, questionable to the catapult air boss, or catapult crew should be worthy of inquiry as to the complete cause of the error. ◄

AIR BREAKS



Dropped a Load. Helicopter pilots engaged in practice lifts of heavy, external loads must ensure their flightpaths are over uninhabited areas. The reason for this was dramatically illustrated by a recent one-of-a-kind mishap. It occurred when a load was dropped because of the misapplied ingenuity of the crew chief.

A CH-53D, configured with a nylon pendant and a nylon and chain four-point sling, was carrying a 6000-pound cube of concrete. The crew chief tied a rotor blade tiedown line to the bottom of the pendant so he could retrieve the pendant when the load was released. Initially, the free end of the tiedown line was wrapped around the crew chief's arm.

The line became loosely wrapped around the pendant and cargo hook while the aircraft was climbing out of the LZ. The crew chief, wearing a gunner's belt, untangled the line by reaching through the cargo hook hatch. As he repositioned himself away from the hatch, he caught the visor of his helmet on the manual release handle of the cargo hook. The load dropped! Luckily, it kerplunked into a creek and didn't hurt anyone or damage any property.

Fortunately for the crew chief, the free end of the tiedown line, at the time the load released, was no longer wrapped around his arm. Otherwise, the crew chief would have had his arm torn from the socket (at least). Also, if the line had been secured to any part of the helicopter, it would have caused structural damage.

The crew chief thought his idea would prevent a possible pendant strike on the belly of the helo because he could pull the pendant into the aircraft after each load release. He just didn't think it through, neither did he discuss with anyone the ramifications and dangers involved.

The squadron reported the NATOPS Manual does not address the use of the pendant with a manually released cargo hook. The procedures in the Manual are premised on the use of the single-leg pendant which is released with the load.

All persons should be cautioned against trying ideas, deviations, and unusual procedures which haven't been tested.

Who Forgot the Gear? Two pilots and their crew manned their C-130 for a routine training flight. The left seat was occupied by the junior pilot, and the IP strapped himself in the right seat. They took off to practice instrument approaches.

VFR conditions prevailed, and several trips around the maypole were completed. A simulated engine failure was introduced, and the left seater was told to execute a three-engine go-around. The gear was raised, a waveoff was smartly conducted, and a downwind turn was initiated to remain in the pattern.

The IP let his student continue downwind even though no checklists were requested. During the turn onto base leg, a frequency change was directed by the tower. The IP handled the frequency change. As the student turned final, he asked for 100 percent flaps. Both pilots were startled when the gear warning horn sounded. At almost the same time, the tower requested a gear check.

Several hands hit the gear handle at the same time, and an uneventful landing ensued. Both pilots and the flight engineer had forgotten that the gear was up.

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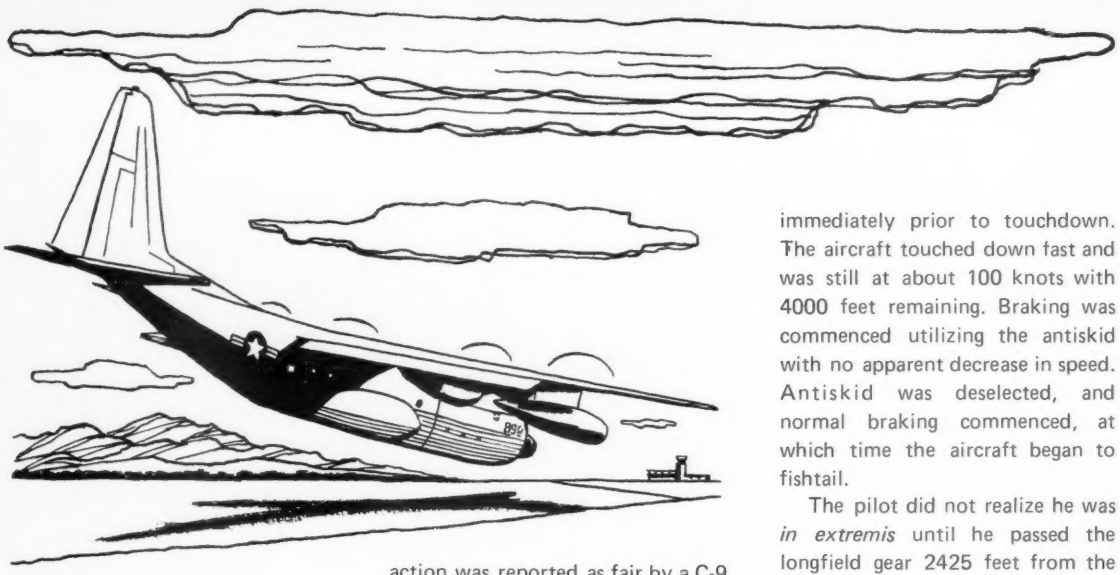


The near mishap was caused primarily by not using the checklist. Further, that old bugaboo, a break in habit pattern (when the IP's attention was diverted), also contributed to the breakdown in cockpit coordination.

Now hear this, all pilots: *Any time you're in an aircraft with dual controls, giving any kind of instruction, it is of utmost importance, in the preflight briefing, to make clear whether the pilot at the controls shall call for checklists or whether the IP will do it.*

One further admonition to all students/copilots/pilots-under-instruction — just because the instructor says he'll do it, don't trust him. *Make sure he does.*

Wet Runway Landing. The pilot of an A-7E was landing at NAS West Coast on the first leg of a cross-country flight. His fuel weight was 3400 pounds. A normal GCA was commenced for a full stop landing. The duty runway was 8000 feet long with a 1500-foot overrun, but was wet and had water pooled in numerous areas. The braking action was reported as fair by a C-9 which had landed 10 minutes prior to the A-7's arrival.

The pilot was using APC on the approach, and because of a slight settle in close, a large power increase was experienced immediately prior to touchdown. The aircraft touched down fast and was still at about 100 knots with 4000 feet remaining. Braking was commenced utilizing the antiskid with no apparent decrease in speed. Antiskid was deselected, and normal braking commenced, at which time the aircraft began to fishtail.

"... you are cleared to land."

The pilot did not realize he was *in extremis* until he passed the longfield gear 2425 feet from the end of the runway. After passing this gear, he wisely lowered his hook, and the *Corsair* engaged the abort gear. It came to a stop approximately 800 feet into the 1500-foot overrun. The aircraft was secured and inspected for damage. There was none.

This incident was caused by the pilot in that he did not comply with recommended NATOPS and squadron SOP for wet runway landings. A combination of errors almost cost the Navy an aircraft.

When landing on a wet runway with 8000 feet or less, it is squadron policy to land at a maximum fuel weight of 2500 pounds and to make a shortfield arrestment. With 4000 feet remaining, 100 knots of airspced, and a wet runway, the decision should have been made to either take it around or take the longfield gear. The most correct decision would have been to execute a waveoff and set up for a shortfield arrestment as stated in NATOPS.

On every landing, the pilot must have a preplanned runway distance and speed where he decides to take the arresting gear, execute a waveoff, or continue braking for a safe stop.

INSTANT

INSTANT replay is a term synonymous with telecasting sporting events. It has definitely made the lot of the TV viewer an easier one, particularly if an individual is so unlucky as to miss (because of dozing or getting a cold beer) the game-winning touchdown, the bases-loaded home run, or other sports spectacle. It gives sports addicts a chance to observe something they may have missed.

In like manner, Marine Fighter/Attack Squadron TWO FIVE ONE, flying F-4Js and commanded by LtCol Joe Mavretic, is using somewhat the same technique to make aviation training and education more interesting and rewarding.

The VMFA-251 TV Training System has been labeled the "Thunderbolt Experiment," making use of the squadron nickname. The squadron's concept of training is to produce a video tape cassette for each F-4J training sortie. Through the very capable efforts of Maj Graham Kerr, Capt Bill Moore, Flight Lieutenant Jack Haines (Royal Air Force exchange RIO and Aviation Safety Officer), and 1st Lt Donn Ramey, the squadron has designed, built, and put into operation a self-contained, closed-circuit TV system with an audio/visual tape cassette capability.

This video system is the first building block in their systems approach to training. Ultimately, VMFA-251 intends to use all types of media to educate and train aircrewmen and ground personnel.

The idea for the system originated when LtCol Mavretic was aboard USS PENSACOLA (LSD-38) and observed the ship's closed-circuit TV system. After noting the adaptability and flexibility of the system for shipboard training, communications, and overall education, he envisioned a similar system within an aviation squadron. That vision came to fruition in mid-February 1974, when the hardware for the video

REPLAY

By R. A. "Chick" Eldridge
Naval Safety Center

cassette system began to arrive.

The system consists of an audio/video camera (handheld), a battery-powered video tape recorder (known as "Portapack" or "Rover"), two regular TV sets or monitors, and two video cassette tape recorder/players. The cost of the entire system, including modifications to convert an existing space into two briefing rooms, was less than $5000.

To fully appreciate the squadron's goals and desired benefits from the video system, it is necessary to understand a little of the evolution of the relationship between aviation airborne training and ground support systems training.

Prior to the NATOPS program, naval aviation training ran the gamut from excellence to nonexistence. Sea stories concerning pilot checkouts in aircraft during and just after WW II aren't as farfetched as they may sound. Many a naval aviator flew his first flight in a new type aircraft after a quick perusal of the pilot's handbook (if he was lucky) and a 30-minute cockpit checkout. True, the accident rate then was astronomical compared to today; but in some cases, a squadron's entire complement of aircraft probably cost less than one of our modern, high-performance, tactical jet aircraft. Most of the pilots' training was accomplished airborne through repetitious maneuvering. Pilots learned by flying many hours in low cost aircraft that were relatively inexpensive to operate and maintain.

With the advent of the jet age and highly complex weapons systems, it didn't take long to discover that to have full systems-qualified aircraft flightcrews, an intensive ground training program was essential. No longer could one afford to send aircraft aloft to "bore holes in the sky" because of the high cost of flight hours. Complex aircraft systems had to be mastered by aircrews so they could perform at their maximum

capability.

It became apparent that more intensive training and study was needed on the ground before the aircrews ever flew in the aircraft for the first time. (This has now developed into a fine science whereby aircrews are taught to fly new aircraft in simulators. For example, one of the largest airlines teaches its pilots transitioning to the DC-10 *entirely* in simulators. After the simulators, the pilot is given 1.5 hours airborne evaluation at the controls. His next flight is expected to be with a load of passengers.) This concept may also be applied to maintenance personnel and their training, since the successful completion of airborne training depends largely upon total systems-ready aircraft.

In the early sixties, NATOPS came into being, and the accident rate began to decline as the quality of aircrew training improved. Standardization was the genesis of both trends. Marine Corps operational squadrons were standardized through the use of the NATOPS manuals and the USMC Training and Readiness Manual (T&R). The F-4J T&R Manual described each training sortie in general terms and established the training and readiness goals for each aircrewman. The limitations of this approach were 1) that the material was usually written in a technical style and 2) that there tended to be a division between ground and airborne training.

The increasing cost of flight time and aircraft in this decade suggested other changes in operational squadron aircrew training. "The emphasis should be," according to LtCol Mavretic, "finding the best way to get the information from manuals into the heads of the aircrews so that it sticks." The airlines recognized this communications problem some years ago and started setting up flight academies where they individualized training by using the latest education techniques and hardware. As a result, their training costs have declined, their safety records have improved, and they feel that their crewmen are better qualified. The "Thunderbolt Experiment" intends to do the same thing in a Marine Corps operational fighter squadron.

The Thunderbolts chose first to improve the quality of their flight briefings by using video cassettes. Each flight is broken into five steps or evolutions.

1. Ground operations from aircraft start to the takeoff point.
2. Takeoff and flight to the operating area.
3. Training exercises conducted in the operating area.
4. Return to base and landing.
5. Ground operations from clearing the runway to shutdown in the chocks.

Steps 1, 2, 4, and 5 are generally routine, administrative, and subject to unit SOP. They also vary daily depending upon weather, location, and aircraft configuration. These steps are best orally briefed by the flight leader. Obviously, the heart of airborne training is what is accomplished in Step 3. Any method which presents clearly, on the ground, what will be accomplished in the air is a great training asset.

For example, there are a series of flights in the T&R Manual designed to familiarize the RIO in becoming proficient in airborne intercepts. Most of the basics for this exercise can be learned in a 15C4 ground radar trainer. By video taping 15C4 radar presentations, splicing in actual radarscope film, and using charts and graphs from the NATOPS Tactical Manuals, the squadron can create a polished briefing on a cassette and use it to brief that particular flight when it is scheduled. With an experienced RIO narrating, a RIO under training can gain valuable knowledge, on the ground, in a low cost environment, knowing that he will observe a near-identical display while in the air.

Once the cassette has been produced, it is also available to the trainee for study at his convenience. Ultimately, each sortie in the T&R Manual will be supported by a cassette and used to brief that mission. To tape the complete F-4J T&R Manual, the squadron has been divided into crew teams, and each team has been tasked to produce a specific number of cassettes. The crew team consists of a lead pilot, wingman, lead RIO, and wing RIO. The cassettes they are required to produce cover the entire spectrum of squadron training. In addition to contributing to a squadron library of briefing tapes, each crew team member learns a lot about his aircraft and its employment by just doing the research for the film.

Competition among crew teams to produce the best tape adds spice and innovation to the chore. Since the aircrew teams also fly together, they have a chance to test their product before it goes on display before the whole squadron.

Many squadrons, both Navy and Marine Corps, have the problem of indoctrinating new personnel to the complexities of flight line evolutions with particular emphasis on aviation safety. Mostly, the personnel are young and inexperienced. One evolution that is very appropriate for recording on tape is the plane captain's preflight inspection. A step-by-step preflight can be permanently stored on video tape for training. After studying it, a plane captain under training can be filmed doing his own preflight. The instant stop and reverse can be used to point out an error or inadequacy at any point in the evolution.

The flexibility of the system for training is unlimited. This writer was taken out to the flight line and given an introduction on how to determine a good F-4 tire from

an inferior one or one that needed changing. As the instructor talked and pointed to specific areas on the tire, the cameraman zoomed in for appropriate closeups of the tire, meanwhile recording the conversation. Five minutes later, we were viewing the entire sequence in the readyroom.

Marine Fighter/Attack Squadron TWO FIVE ONE's approach to training is an unwritten, contractual agreement between the squadron and the individual. It is a cohesive training program designed around the crew/team concept. An integrated package of ground and air training is published and disseminated to all crews. The emphasis is on individualized instruction and good communications. The squadron has embraced this type of training with great enthusiasm.

One reason this new concept of training should succeed is that the personnel receiving it are products of video culture. Young people of today have been brought up in a TV environment and are assimilating knowledge from television. Proof of this has been the great strides made in educational TV. It is simple, easily understandable, and lends credence to the adage that "a picture is worth a thousand words."

In VMFA-251, audio/video training is becoming a way of life. ◄

Nowhere to Go!

THE PILOT of a C-118 was making an approach to Runway 27 at Smokey Airport. Now, it happens that the airport sits on a flat piece of land with a steep drop at both ends of Runway 9-27. Also, the entire north side of the airport (parallel to 9-27) drops off to a river.

On a long final, when the gear was lowered, the starboard MLG hung for about 15 seconds before it dropped down and locked. Hydraulic pressure was normal, and all gear indicated down. The approach was about 5 knots fast, and about the time they reached the inner marker, the pilot called for full flaps.

There wasn't any change in pitch, which the pilot expected, and the aircraft was hard to slow down to desired threshold speed. The landing was slightly long.

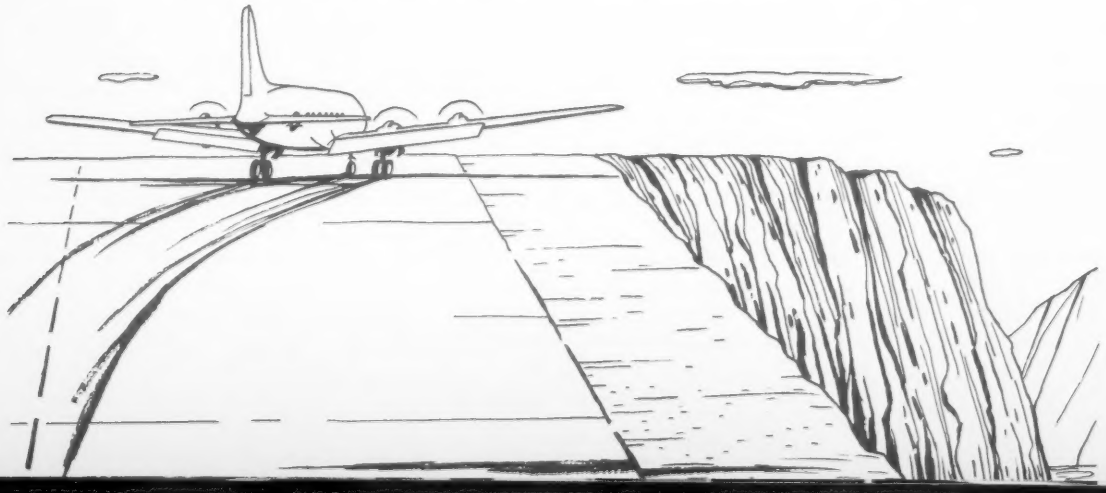
After landing, reversing was initiated. When the C-118 slowed to 70 knots, it began to veer right. The pilot attempted to correct the drift with nosewheel steering. It didn't work. He also tried left brake. That didn't work either.

Remember, while these malfunctions were occurring, there's nowhere for the aircraft to go to starboard except across a strip of grass and then over a bank and down into the river. There was no overrun straight ahead. The end of the runway was the end – and then a drop of 100 feet or so into the boondocks.

The pilot went to max power in reverse on No. 1 and 2 engines, and the aircraft straightened out. The copilot actuated the emergency hydraulic pump, and some binder action was regained. The big C-118 stopped, on the runway, 200 feet before the dropoff. End of flight.

The transport was towed to a parking spot on the ramp, and the mechs got busy. They found that the starboard outboard bungee cable had separated on takeoff, and the spring was jammed between the actuating links and rod. The bungee spring attaching bracket bolt was loose, causing the actuating rod to bend when the gear went into the wheelwell. This destroyed the seals, and when the gear was lowered, a massive hydraulic leak occurred – result, no nosewheel steering or brakes.

This incident is a good example of a crew who knew their aircraft, stayed right with it even though they had big problems, and worked successfully together to solve each one. Merely an incident – only because the crew's knowledge, training, cockpit communication, and coordination prevented a catastrophe. ◄



APES

Accident Potential Evaluation System

A Quantitative Measure of Safety Program Effectiveness

By LCDR R. M. Nutwell
ASO, VA-25

IT is currently fashionable to cast the aviation safety officer in the role of "manager" of his squadron's accident prevention program. Unfortunately, when compared to managers in most other fields of endeavor, the safety officer is woefully ill-equipped with modern, quantitative management tools. Although maintenance and operations officers can refer to such excellent criteria as FSC (full systems capable) rates, sortie rates, and CEP (circular error probable) for a "howgozit" on their department's performance, no such measures of performance are available to the ASO. Many safety officers operate in the dark until they are stunned by an unexpected accident or, hopefully, complete their tour unscathed.

Although the Navy's major aircraft accident rate furnishes an excellent measure of effectiveness for the naval aviation safety program as a whole, at the squadron level, no good quantitive means currently exists for evaluating the effectiveness of an individual command's accident prevention program. Accidents

happen relatively infrequently, even to the most hazard-prone commands. Moderately long accident-free periods can be partly the result of luck and may conceal serious problem areas. Anyway, it would be nice to have some means, short of waiting for a full-sized accident or two, of estimating how accident-prone one's squadron is and where the biggest problem areas lie. In short, we need a way of doing hazard trend analysis at the squadron level.

Several thought-provoking articles in recent issues of APPROACH have suggested directions to remedy this problem. In a June '73 article entitled "System Safety and the Decision Maker," LCDR R. A. Hess proposed a quantitative methodology for subjectively evaluating the degree of hazard associated with each aircraft sortie. In the September '73 issue, VT-28 proposed a "Trend Analysis Worksheet" on which all aircraft mishaps are documented by cause factor. CDR "Zip" Zirbel, Commanding Officer of VA-95, described in the May '74 APPROACH a technique called the "Chaos Index" for measuring accident proneness as a function of the number of events that deviate from scheduled operations.

My proposed system, called "APES" for "Accident Potential Evaluation System," is a synthesis and extension of these ideas. It is based on the premise that even in small commands, minor hazardous incidents occur with sufficient frequency that the number and severity of such incidents in a monthly reporting period gives a very accurate picture of the command's potential for a major accident and hence a good estimation of safety program effectiveness.

First, it will be necessary to define two concepts more precisely. The *accident potential* of a unit is a measure of the likelihood at any given time that an accident will occur within that unit. It is a quantitative embodiment of the concept expressed in the frequently heard lamentation "That place (or that guy) is an accident waiting to happen." A *hazardous incident* is any occurrence that 1) results in injury to squadron personnel or damage to equipment for which the squadron is accountable *or* 2) that presents a potential for such damage or injury beyond the hazards associated with normal operations. This definition includes as a subcategory: aircraft accidents, ground accidents, and incidents as defined in OPNAVINST 3750.6J. It also includes all no damage/no injury occurrences (such as aircraft systems failures, tool FOD incidents, maintenance "screwups," and pilot deviations from NATOPS) which could have resulted in an accident or which reveal deficiencies in motivation, training, procedures, or equipment.

Hopefully, these latter incidents constitute the vast majority of hazardous occurrences in the squadron. They are the safety officer's "bread and butter" in the sense that learning of them and eliminating their causal factors before a mishap results is one of his primary tasks. At first glance, some of these incidents may not seem very important. Safety problem areas often reveal themselves, however, by one or more "near-misses" or other "minor" hazardous incidents before causing a major accident.

The fundamental thesis of APES is that *the accident potential of a command at any point in time is an increasing function of the number and severity of hazardous incidents that have occurred during the most recent reporting period.* This thesis is founded on the supposition that whatever conditions brought about the hazardous incidents probably still exist a short time later. Furthermore, since minor hazardous incidents occur fairly often even in small squadrons, the hazardous incident rate can serve as a good quantitative measure of accident potential.

The heart of the proposed system is the Hazard Rate Worksheet shown in Fig. 1. It is essentially a modified

HAZARD RATE WORKSHEET — FORM 3750/2

UNIT	VA-99	ACFT MODEL	A-7E	FY 75	PAGE 1

DATE	ACFT	MISHAP/HAZARDOUS INCIDENT						HAZARD POINTS ASSIGNED, BY CAUSE FACTOR														REMARKS
		OHR	B	GA	I	MIN	MAJ	PILOT	NATOPS	SUPV OPS	SUPV M	SUPV O	MATERIAL E	MATERIAL A/F	MATERIAL A/W	MATERIAL O	M PERS	FAC SH	FAC CV	O	UND	
7/3	402	X						2														NO CONTROL CHECK ON CAT
7/3	410				X									5								LAUNCH BAR MALFUNCTION
7/5	410	X						2														FUEL DUMP ON DECK
7/6	404	X								2												WT SHEET ERROR (SDO)
7/10	403	X															2					DISREGARD FOR INTAKE
7/10	404	X															3					TOOL ADRIFT IN AV BAY
7/11	401				X								10									ENG FAILED ON TRAP
7/12	403	X						5														NEAR MIDAIR
7/12	403	X															3					TOOL ADRIFT IN COCKPIT
7/12	410	X						3											2			IMPROPER CAT PROCEDURE
7/15	402				X			3														INADVERTENT RACK JETT
7/16	406				X										3							GENERATOR FAILURE
7/19	410				X									3								PC-2 FAILURE
7/19	406	X						2														BLOWN TIRE
7/20	402,405	X																	2			ACFT SPOTTED TOO CLOSE
7/22	403	X																	3			MINOR CRUNCH
7/22	405	X						2														NO HUNG ORD CALL
7/27	401	X												2								UNABLE TO RAISE GEAR
7/28	404	X																	2			DISREGARD FOR INTAKE
7/28	405	X															3					TOOL FOUND UNDER SEAT
7/29	406				X								5									COMPRESSOR STALLS
7/1 - 7/31													1	2	12	1						GROUND ABORTS
TOTALS		15			6			19		2			16	12	15	1	11		9			85 — TOTAL PTS THIS MO.
																						438.3 — FLT HRS THIS MO.
								22		2			18	14	17	1	12		11			97 — HAZARD RATE

Fig. 1

ABBREVIATIONS

OHR	Operational Hazard Report
B	Bird Strike Report
GA	Ground Accident
I	Aircraft Incident
MIN	Minor Aircraft Accident
MAJ	Major Aircraft Accident
SUPV	Supervisory
M	Maintenance
O	Other
E	Engine
A/F	Airframe
A/W	Avionics/Weapons Systems
M PERS	Maintenance Personnel
FAC	Facilities
SH	Shore
CV	Carrier
UND	Undetermined

COMPUTATION OF HAZARD RATES

Monthly Hazard Rate =

TOTAL HAZARD PTS. FOR MONTH / Total FLT. hrs. for month — X 500 FLT HRS

Hazard Rate By Cause Factor =

TOTAL HAZARD PTS. BY CAUSE / Total FLT. hrs. for month — X 500 FLT HRS

PARTIAL LIST OF MISHAPS/HAZARDOUS INCIDENTS AND HAZARD POINTS ASSIGNED, BY CAUSE FACTOR

Major acft. accident	50
Ground accident with subst. damage or disabling injury	50
Minor aircraft accident	25
Ground accident with minor damage or less than disabling injury	25
Tool "FOD"	3
Disregard for intake/exhaust	2
Improper flight deck gear	1
Improper flight gear	1
Improper aircraft spot	
Ordnance not involved	2
Jet exhaust on ordnance	10
"Cut" pass	5
Ground abort	1
Pilot procedural error resulting in Safety-of-flight fine	2

Fig. 2

version of VT-28's Trend Analysis Worksheet (APPROACH, SEP '73, pg. 15). The worksheet records all of the hazardous incidents occurring in a given month. They are documented by date, aircraft side number (if applicable), type of incident, cause factor, and a brief description. To each incident is assigned a point value, on a scale of one to fifty, which is a subjective assessment of two factors: how close that incident came to causing an accident, and how serious the accident would have been. If more than one causal factor is present, the hazard points are distributed equally among them. It is not necessary (and highly unlikely) that everyone agree on the number of points to be assigned each incident. The methodology will work properly as long as points are assigned consistently – i.e., virtually identical incidents are assigned the same number of hazard points.

At the end of each month, the hazard points assigned are summed over all incidents and all causal factors, the total being adjusted proportionally for a 500-flight-hour month. The resulting figure, in hazard points per 500 flying hours, is called the hazard rate for the month. It is very much akin to the Navywide aircraft major accident rate. Individual hazard rates by causal factor can be computed in a similar manner. The reverse side of the worksheet, Fig. 2, explains the abbreviations and methodology used to compute the hazard rate.

The foregoing system provides a safety officer with two tools that he does not currently possess. First, the monthly hazard rate is a meaningful measure of effectiveness for the command's overall accident prevention program. It is reasonable to assume that a squadron which has reduced its hazard rate by, say, 25 percent has made itself a significantly safer squadron. Secondly, the individual hazard rates by causal factor facilitate the identification of problem areas through trend analysis. For example, the hypothetical worksheet in Fig. 1 indicates that more emphasis needs to be placed on pilot procedures, tool control, and aircraft handling procedures. Additional advantages of a methodology such as APES are:

- Submission of the monthly Hazard Rate Worksheet to the CO provides a convenient format for the ASO to present his comments and recommendations on the squadron's safety performance. It also ensures that no significant incidents have escaped attention.
- Publication of the Hazard Rate Worksheet to all hands could aid the safety information and education program by revealing past mistakes and danger areas.
- By providing a comprehensive overview of the squadron's safety performance in all areas, the system gives the safety officer the feeling he has a good "handle" on his job. And, if his safety program includes measures to eliminate all of the hazards reported in recent months, he probably *does* have things well under control.
- The hazard rate can be used to establish meaningful, quantitative safety program goals. For example, a short term goal might be to reduce the monthly hazard rate from 100 to 75 within 3 months.

The astute reader will no doubt have observed by now that the "sine qua non" for this methodology to function properly is an effective operational hazard reporting system within the squadron. If hazard reporting is sporadic and many incidents go unreported, the resultant hazard rates will not be meaningful. Nevertheless, reliable hazard reporting is a prerequisite for *any* good safety program. It is axiomatic that a safety officer cannot eliminate hazardous conditions or practices of which he has no knowledge. Fortunately, an aviation squadron is a small, fairly intimate community. So, it is quite feasible for the safety officer, with a few assistants and a strong educational effort, to learn about the vast majority of dangerous incidents that occur.

Although this article is oriented toward the aviation community, the theory of APES is sufficiently flexible to permit its use with equal success as a safety management tool in any other type environment – aboard ship, in industry, or in vehicular safety, for example. All that is required to adapt it for use in another field is a redefinition of causal factors. ◄

BEWARE

approach/january 1975

AFTER a normal night intercept mission, the pilot of an F-4N prepared for a penetration to a GCA, to be followed by VFR touch-and-go's at Homefield.

The entire airfield environment was visible to the pilot at 15 miles, even though the approach controller had informed him that a fog bank was approaching the field from the southwest. At 6 miles and 2000 feet MSL (1600 feet AGL), the airfield was still visible as the *Phantom* was handed off to the GCA controller for final approach. Shortly thereafter, the pilot was advised to make a full stop landing because the field had gone IFR. No specific ceiling and visibility were given.

The aircraft entered the fog at approximately 800 feet AGL. Approaching decision height, the GCA controller advised the pilot that the "outside observer reports visual contact." The pilot stated he saw flashing strobe lights and looked outside the cockpit to see the runway environment. The touchdown point was not visible, and when the pilot looked back into the cockpit, he noted a 1500 fpm rate of descent on the VSI. He added full military power and rotated the aircraft on the gyro. The aircraft, however, touched down in a right drift on the overrun, approximately 1000 feet short of the GCA touchdown point, and became airborne again.

The aircraft broke out of the fog again at midfield, and the pilot commenced a right turn to execute a left teardrop to the opposite runway which was still clear of fog. The RIO then noticed what appeared to be the left strut protruding through the top of the left wing. After the pilot had observed the PC-1 hydraulic pressure reading zero, the RIO reported unusual heat in the rear cockpit.

During the turn to land on the opposite runway, the pilot twice noted the aircraft "attempting" to stall, even though the airspeed was approximately 200 KCAS. Both times, he recovered by rolling wings level with rudder while adding full military power and using forward stick.

The pilot finally lined the aircraft up with the runway, and as he began to slow for landing, the bird again wanted to stall. He initiated a waveoff just as the RIO reported that the heat in the rear cockpit was no longer bearable and that he was going to eject. The pilot, about to reenter the fog with a marginally controllable aircraft and possible fire, concurred. The RIO initiated command ejection, and both crewmembers landed near the runway intersection. The pilotless aircraft crashed on the field, inflicting substantial property damage, but there were no personnel injuries. The pilot and RIO were uninjured and were picked up by the crash crew.

At approximately the time the pilot commenced his final approach, he was informed by the GCA controller that the field was IFR. He was not informed of the actual weather conditions. A recent observation had reported the weather as 10,000 scattered, 2 miles visibility with ground fog, wind 17/05, with remarks: duty runway RVV less than 3/16 mile. In interviewing the final controller, the aircraft mishap board discovered that he had in fact been alerted to the posting of a new weather observation and had decided the observation, with its 2-mile visibility, was not of sufficient importance to warrant interrupting the control commentary to pass it on to the pilot. He overlooked the remarks section, indicating the RVV as being less than 3/16 mile.

It turned out, also, that the outside observer denied reporting "contact" to the final controller. A review of the tapes failed to substantiate the controller's statement that the observer had reported contact. The board concluded that the final controller, not knowing the actual approach visibility, fully expected to hear a "contact" transmission and mistook another transmission from the observer as being the contact report.

This accident clearly illustrates the insidious nature of low fog. As the aircraft approached minimums, the pilot acquired the strobe lights flashing in the fog. He looked outside the aircraft to acquire the runway, but could not see it. By the time he looked back inside the cockpit, he had allowed an excessive sink rate to develop. This could have been caused either by a slight power reduction or by being trimmed slightly nosedown and unconsciously relaxing back pressure on the stick as the pilot looked outside the aircraft. In any case, the pilot made a late decision to execute a missed approach, resulting in an extremely hard landing and the ultimate loss of a valuable aircraft.

the Fog

Land Long and Flat

A P-3B airways training flight was to include stops at four bases enroute to destination. The PPC was not sure of the itinerary until 0530 on the date of takeoff, when he arrived for preflight.

A flight planning discussion among the pilots resulted in the selection of the squadron's only heavyweight aircraft so that enroute refueling would not be necessary. The aircraft was fueled to 50,000 pounds with the knowledge that one overweight landing would be made at NAS First Stop. The takeoff and subsequent flight to NAS First Stop was uneventful until landing. (The PPC elected to pilot this first leg as he had previously flown into NAS First Stop.)

A GCA was flown with a minimum approach speed of 160 knots. (Recommended approach speed for their aircraft weight of 112,000 pounds is 152 knots.) The GCA was uneventful; but the pilot selected full flaps early, at 1½ miles, to dissipate excess airspeed and altitude prior to touchdown.

A normal touchdown was made within the first half of a 5000-foot runway. Because of excessive airspeed (142 knots), the pilot did not immediately reverse in view of the NATOPS requirement to be below 135 knots before reversing. Approaching the 1000-foot remaining marker, the copilot called out "One thousand feet remaining. You'd better get on it." At that time the pilot applied heavy braking and maximum reverse.

The *Orion* continued through the 100-foot overrun and into a grassy area approximately 110 feet beyond the overrun and slightly left of centerline. All engines were secured utilizing the E-handles, and the aircraft was evacuated via the main cabin door without further incident.

The aircraft was towed back onto the runway, inspected for damage and FOD, and flown back to Homebase.

Individual actions which caused this incident include:

- The route of flight was hastily conceived.
- The pilot did not commence planning for a multistop flight until normal preflight time.
- Upon arrival for preflight, a PPC bag was not available for the pilot; and as a result, many of the necessary flight materials, i.e., charts, approach plates,

etc., had to be picked up at NAS Operations.

- Because of the multistop itinerary and the probability of an additional stop enroute, the only heavyweight aircraft assigned to the squadron was selected for the flight. Additional fuel was added to the scheduled load utilizing the standard rule of 5000 pounds per hour, with an additional 500-pound "J" factor. The final fuel load was 50,000 pounds with the first landing planned for 1+00 after takeoff. This meant that the first landing would be made at a minimal weight of 110,000-114,000 pounds.

Because of recent operational flying experience at fields with runways in excess of 10,000 feet, the hazards of a short runway apparently never entered either pilots' mind. Adding to the pilot's problem was the failure of the copilot to carry out his responsibilities as a safety pilot. He was not aware of runway length and gave no thought to touchdown point, landing rollout distance, and touchdown speed. He did not advise the pilot to wave off, and the criticality of the rollout was first focused in his mind when he saw the 1000-feet remaining marker.

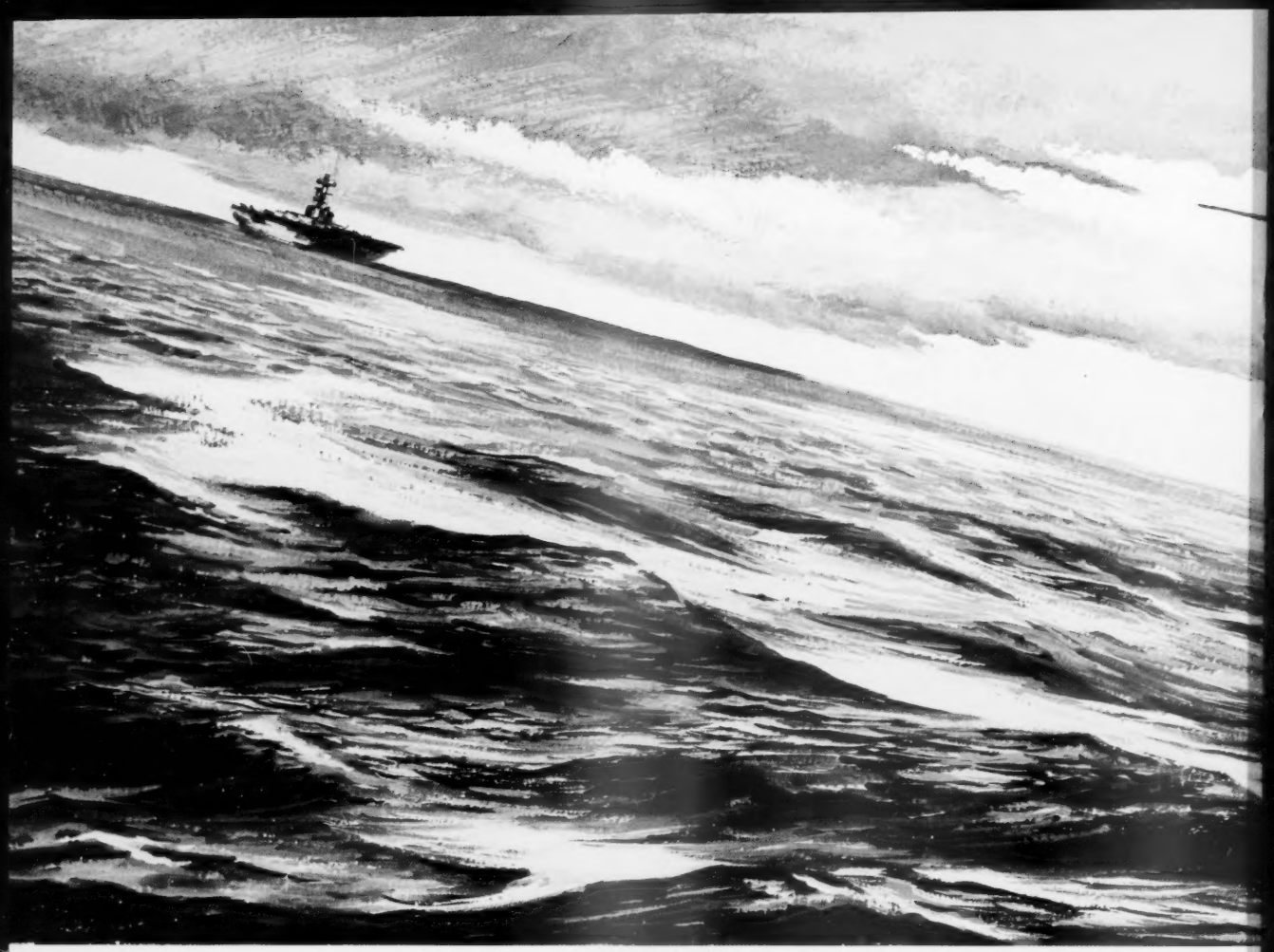
The pilot had never landed the P-3 at 114,000 pounds. His prior experience was limited to aircraft with maximum landing weights of 105,000 pounds. This landing weight necessitated a higher approach and landing speed than normal. The PPC's training jacket indicates an occasional tendency to land fast and long. According to the pilot's statement, execution of a smooth landing was foremost in his mind rather than a normal, planned touchdown point.

Proper preflight planning would have disclosed that at 112,000 pounds, 2100 feet would be required for landing rollout with hard wheel braking and 3500 feet with moderate braking at recommended touchdown speeds. Neither pilot was aware of this fact. This situation was further aggravated by a touchdown speed of 142 knots (126 knots NATOPS recommended) which created a "land long and flat" condition and made running off the runway a predestined event.

Although no damage or injury resulted from this incident, the potential existed for a major aircraft accident. An extensive investigation was conducted to determine the circumstances which led up to this incident. The major factors involved were:

- Ops/skeds late confirmation of route of flight.
- Incomplete and hasty preflight planning.
- Poor crew coordination.
- Lack of experience of the plane commander in landing a heavy aircraft.
- Failure of both pilots to recognize a dangerous situation in time to take effective, corrective action.

This incident points out the necessity of planning the flight and flying the plan, realizing that NATOPS planning charts were designed for just that – planning.



Winter Water

TWO hours before launch, sea surface and air temperatures were briefed as 66°F and 50°F. At launch time, the ship had left the warmer waters of the Gulf Stream, and the sea temperature had dropped to 54°F. Need we remind you that when the combined water and OAT (outside air temperature) is 120°F or below, or when the water temperature alone is under 60°F, General NATOPS requires an antiexposure suit? The pilot in this story didn't wear one.

"The pilot was equipped with all required survival equipment," says the squadron survival officer, "except his antiexposure suit."

If the pilot hadn't had to eject, "except his antiexposure suit" wouldn't have mattered, perhaps. But, there was material failure/malfunction – specifically HP-1 vane segment failure with subsequent mechanical distress to the entire engine turbine section of the A-7 – and he did eject. Once in the water, he was so cold that events almost got the better of him.

To make matters worse, during parachute descent, he jettisoned his seatpan – which means he threw away his survival kit and raft. His reasons: he didn't want the extra weight while he was in the water; and he was in sight of the carrier and the rescue helicopter, anyway.

"Definitely," the pilot's failure to wear his antiexposure suit influenced his survival phase, says the investigating flight surgeon. "Psychologically, he responded to the uncomfortable cold water environment with apprehension, anxiety, and excitement. Physiologically, he responded with peripheral vasoconstriction to maintain his body heat." (To us laymen, that's when your body automatically constricts or narrows blood vessels to decrease blood flow to the body surface and, thus, prevent surface heat loss.)

Survival

"One of the cardinal rules of survival is never destroy any survival equipment," the flight surgeon continues. "The pilot should have deployed his liferaft before water entry. This would have decreased the seatpan's weight and would have been a way to escape from the uncomfortably cold water."

The pilot had trouble staying afloat – he was swallowing water, and breathing was not easy. He tried to improve the situation by inflating his LPA, but he pulled only one toggle successfully. By talking to himself, he forced himself to relax. On his next try, he managed to inflate the rest of the life preserver.

"The feeling of panic was frequent in the water," he recalled later. Over and over, he had to make himself relax and work slowly. Waves, he estimates, were 3 to 5 feet high.

The *Corsair II* pilot wasn't the only one in the water without complete protective clothing. The helo rescue crewman had had the same weather brief – water temperature 66°F. He was not wearing his wet suit pants.

Other factors slowed the rescue. The rescue crewman's mask fogged up because of the temperature change, and the sun blinded him so he couldn't see the survivor. He had to swim around until the sun was at his back before he could begin the rescue.

Parachute shroudlines wrapped around the pilot's neck and feet. Part of the chute's canopy was over his head. Although the pilot had released his mini Kochs (lapbelt) and thought he had released himself from the parachute on water entry, the helo crewman found that he had *not* released his parachute. The swimmer opened one of the parachute Koch fittings easily, but had trouble releasing the other. (After rescue, the recalcitrant fitting worked without difficulty.)

Soon, the swimmer had the pilot cleared of all shroudlines. He pulled him away from the chute and gave the signal for pickup.

The crewman had planned to rescue the pilot by attaching the hoist hook to the pilot's torso harness V-ring. Mistakenly, however, the pilot believed his V-ring to be on his left shoulder. As a result, neither he nor the crewman could find it. The sling was on the hoist, so the pilot entered it and went up first. The crewman, who did not have on a swimmer's harness, went up on the second trip.

If the crewman had been wearing a swimmer's harness, says the investigating flight surgeon, both men could have hooked on to the hoist and gone up together. This would have cut the crewman's time in cold water.

"After reviewing the mishap," writes the flight surgeon, "it is evident that the pilot's expert knowledge of his aircraft and its egress mechanism and his demonstrated professionalism were of primary importance in there being no fatality or major injury. Once out of his familiar environment, however, the pilot experienced a number of problems. These problems and difficulties, although minor, could have led to a tragedy. The survivor – an experienced naval aviator – was able to perform better in the cockpit than in the water.

For a person to be more at ease in the environment he is trained for than in an unfamiliar one is to be expected, the flight surgeon states.

"This instance demonstrates, however, the need for a more realistic periodic survival and rescue training than a 3-year maintenance swim," he observes.

"*Second,* the importance of using required flight gear and survival equipment correctly cannot be overemphasized. It must be constantly *reemphasized,* even to experienced aviators. To elect not to wear an

antiexposure suit when it was required by General NATOPS was to take an unnecessary chance.

"Third, meteorology must attempt to forecast what the expected weather parameters will be at the time of a carrier launch, especially when a great change is anticipated.

"Fourth, there should be active periodic training concerning rescue procedures between SAR personnel and flightcrews.

"Fifth, SAR personnel must have all of the necessary equipment available for a most expedient and successful rescue."

Remember, crewmen and passengers of operational naval aircraft have to wear the latest available continuous-wear or quick-donning antiexposure suit, as appropriate, when there would be a significant risk of water entry in the event of a mishap *and* 1) the water temperature is 59°F or below, 2) the outside air temperature is 32°F or below, or 3) the combined outside air temperature/water temperature is 120°F or below. The commanding officer makes the final determination in a judgment based on all pertinent factors.

If you are ever in a winter water survival situation, you'll have enough to worry about without being handicapped further by the cold. Take advantage of all the protection you can get. The best thing going for you this winter is your antiexposure suit. ◄

IT PAYS TO HAVE A PLAN

20

THE CREW of a CH-46F was fragged for a passenger transport mission. They departed an LST at 1545 in VMC for USS BOAT. They had a full fuel load, but no range-extension tanks.

On arrival overhead, they were shuttled in the delta pattern until other helos had landed and departed. After their signal to land was received, they made an uneventful landing at 1625, with 900 pounds of fuel per side. The pilot requested fuel, but a voice advised that, although the ship had fuel, it couldn't provide a sample. The pilot didn't understand the transmission, but elected not to make an issue. He knew there was a friendly LPH only 30 miles away.

At 1700, the HAC was requested to clear the deck for an inbound VIP who arrived at 1715. After the VIP helo had departed, the H-46 pilot was again cleared to land. The pilot, however, was told not to shut down because another VIP was expected. (BOAT didn't know when the second VIP was due.) The H-46 HAC was told to lift again and that he would be refueled after arrival of the second VIP.

The H-46 crew flew around nearby for about 40 minutes and were then cleared to land and hot refuel. On final, they were waved off and told to hold a few more minutes. (Still no news about the second VIP.) That did it! The HAC sent BOAT a (expletive deleted) farewell.

He set course for the LPH and advised them he was inbound and needed fuel. A voice on the LPH advised they had secured from flight quarters and didn't *know* if it could be reset. Things were really beginning to turn to worms.

Nevertheless, the HAC wasn't easily shook. He turned toward the beach and gave BOAT one final call and advised he had to land and refuel or proceed to the beach. They let him go. He had 400 pounds of fuel per side and 36 miles to go to a friendly air station. He continued beachward and called approach control.

Despite all the good, common sense he had used, the HAC wasn't going to make it. Crossing the beach, he ran into light rain. Five miles farther, he ran into a deluge, continuous lightning, and turbulence. Not wanting to proceed IFR on fumes, he made another smart move. He told Approach, made a fast 180, and landed on the beach with 200 pounds of fuel per side.

Eventually, fuel was flown out to him, and they made it safely to the air station (long after dark).

Kind of makes you wonder what excuses the "voices" on BOAT and the LPH would've had if the helo pilot had ditched. Sure, he could have declared an emergency, but he left himself an out by not committing himself to a single course of action. His CO commended him for his good judgment and professional performance in executing a precautionary landing when he did. ◄

notes from your flight surgeon

Alcohol

ALCOHOLISM and alcohol abuse are receiving more and more attention at all levels in our country today. The Navy has recognized this problem and has taken action by establishing alcohol rehabilitation centers. Since alcohol is our most abused drug, the habit patterns of social dependence on it must change. Movies depicting the dashing aviator extending Happy Hour to the early morning and the hard working, hard drinking maintenance man are things of the past.

Alcohol does not mix with aviation. To highlight the dangerous potential of the mix, OPNAVINST 3710.7G states: "No crewman shall assume aircrew duties within 12 hours of last consuming alcohol."

Although there are few documented instances of drunks attempting to fly aircraft, there have been numerous instances of impaired judgment and skills due to hangovers. Alcohol is processed by the human body at the rate of one-third ounce every hour, so those martinis at the club may still be influencing your decisions until noon the next day. Alcohol affects judgment first, then reflexes, thinking, and memory.

What do you do with a hungover aviator?

Keep him on the ground.

COMNAVAIRPAC msg

Panic

PANIC is a very individual and often idiosyncratic reaction. It is, however, almost always characterized by an abrupt shift from a familiar environment to a markedly different and threatening one. This certainly occurred in this midair as the very familiar cockpit changed into a rolling, flaming, potential coffin.

The pilot was able to accomplish the first step correctly – that of ejecting himself – yet he forgot many subsequent steps. This was quite possibly due to not having these steps thoroughly ingrained in his mind so that, instead of being orderly, thought-out actions, they would approach natural, automatic ones. Though it would be impossible to demonstrate what it is like to be in a flaming cockpit, other survival procedures can be and are taught to aircrews.

"Don't care what they said in survival school. It ain't goin' in my stew!"

Increased training, both formal and self-training, would aid in making these actions more natural and automatic.

In conclusion, it should be noted that this person did survive and will apparently have no permanent injuries despite numerous errors during the survival situation. Survival equipment and SAR procedures deserve commendation since they do provide for less than ideal and faultless procedures on the part of the aircrew and/or equipment failures.

Flight Surgeon in MOR

No NATOPS Manual

"IT'S no wonder that two-thirds of naval aviation accidents involve human error to one extent or another," says an investigating flight surgeon in his summary comments in an MOR. "The human body, with all its intricate and interdependent systems, unfortunately does not come equipped with a NATOPS manual. It behooves the naval aviator to be concerned and sensitive about the subtle stresses and variations which alter performance.

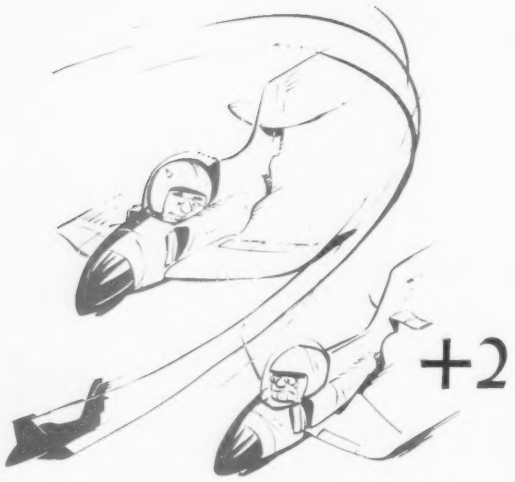
"Although in this accident, no one factor in isolation can be identified as causative, the data presented reflects the combination of ingredients which seem always to be present and which in proper combination spell trouble. To recommend more sleep, less food (the accident occurred on taxi after a heavy five-course meal), or quieter HF radio would be to sacrifice the point. I would recommend that through proper education a sensitivity be aroused in the naval aviator about the multiplicity of factors which alter his performance and behavior." ◄

How SIERRA HOTEL* are you?

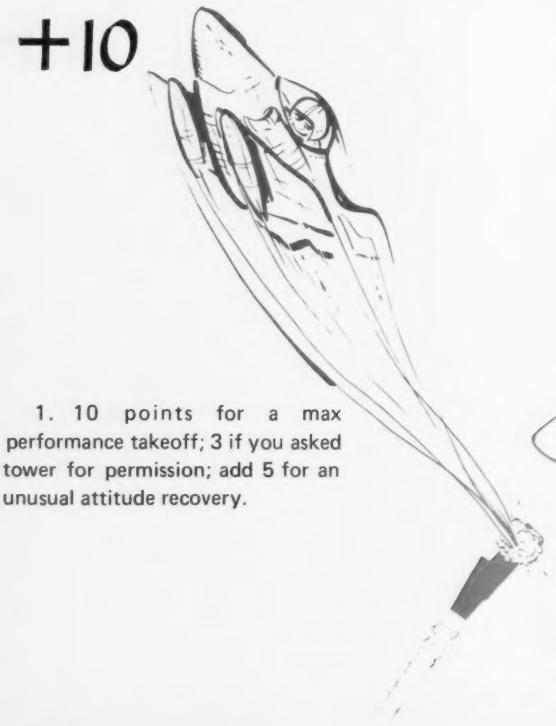
By LT R. Wilkes, VA-165

WE all know it takes a special type of person to walk in the door of Indoctrination Battalion at Pensacola and stick with it until he finds himself fighting to stay on the glide slope during a night CCA. This special quality comes under many names within the trade, but can be described as dash, daring, a desire to pit skills against greater challenges and be among the best.

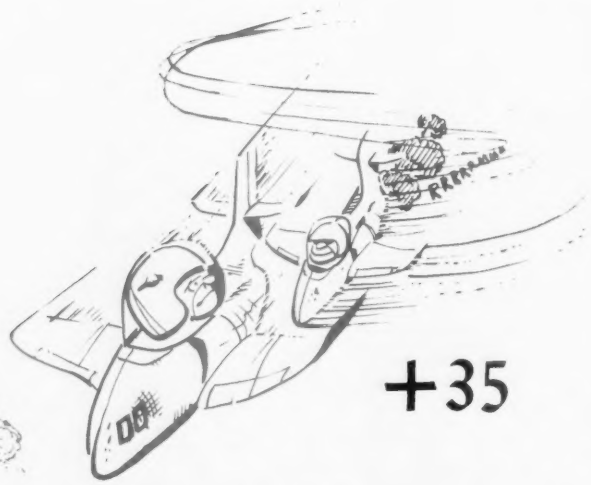
Then we come to a select group within this proud brotherhood who would be described as SIERRA HOTEL. In a community of tigers, the normal competitive urges are magnified, and there are those who wish to rise above the masses. So how SIERRA HOTEL are you? Take the following test and find out. Although it is slanted toward jets and carriers, with a little imagination, members of other aviation communities can make the correlation.



2. 15 points if you jumped a section of *Phantoms* or *Crusaders;* add 10 points if you won the fight (unless you were in an A-4 or A-6, then you get 2 points); add 10 more if you made a big thing about it.

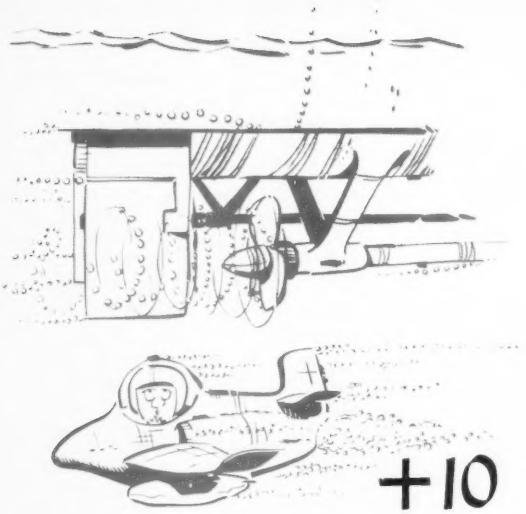


1. 10 points for a max performance takeoff; 3 if you asked tower for permission; add 5 for an unusual attitude recovery.



3. 10 points for a rendezvous with 300 knots of closure speed; add 15 if you got both engines relit just as you slid into parade position; add 10 if you were rendezvousing on the skipper.

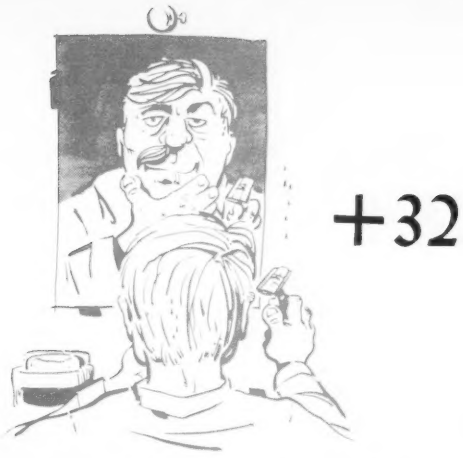
* *SUPER* HOT



4. 5 points for a low pass abeam the ship; add 5 if you were lower than the flight deck; 10 points if you were so low nobody knew you did it.

5. 10 points for a 500-knot break; plus 5 if you had an accelerated stall; add 15 if you recovered and called it a tuck-under break; 5 more if anybody believed you.

6. 5 points if you were up late booming and still made your zero-dark-thirty brief; 5 more if you had a barf and a cigarette for breakfast; minus 15 if you had to catch it in your glove.



7. 10 points if you wear a moustache; add 7 if your XO hates it; add 15 if the XO then decides to grow one of his own and you shave yours off.

Rate Yourself

If you scored more than 100, you are really SIERRA HOTEL. You have people asking you to leave them your stereo and leather jacket when you smoke in. A flight violation beats no mail at all. If you scored between 75 and 100, you, too, are SIERRA HOTEL, but you manage to stay awake when the safety officer talks at AOMs. Between 50 and 75, you are probably a normal red-blooded JO who shows some pizzazz, but stays within the boundaries of good sense and professionalism. If you were between 25 and 50, you are probably a LCDR or above with a leak in your G-suit.

Watch it, though. Because if your score is too low, you just may be saddled with a squadron command.

You're probably wondering what all this means. Well, aside from the attempt at a little humor, there really is a valid test of how SIERRA HOTEL you are. How well do you perform the primary mission of your aircraft? For example, are you near the top of your squadron in CEP when you go to Fallon or Yuma? Are your carrier landings consistently outstanding? If you are an NFO, how well do you know your bombing/air intercept system? Do you score high on your NATOPS exams?

It is still important to fly with spirit and elan, and sharp breaks and flybys done in an authorized manner improve the morale of crewmembers and ground troops alike. But let's not blow it out of proportion. If you can bomb better than your Skipper, get OK-three wires all the time, and know your aircraft better than any other dude in the squadron, your reputation as a SIERRA HOTEL pilot or NFO has already been made. ◄

Helicopter Operations

By LTJG Alan W. Garey
HC-6

REGIONAL CALIF. (San Diego) 32°49′N 117°08′W GMT–8 (–7DT) **SKETCH L–3 (MYF)**

P 423 BL4,9① H34 (ASP) (S12)
FUEL-(NC–C1A1)
AERODROME REMARKS-Attended 1500–0700Z. ①On Test.
COMMUNICATIONS-(TIE-IN FSS SAN DIEGO)
● **SAN DIEGO APP CON**-381.5ⓐ 363.1Ⓑ 290.4ⓒ 128.0Ⓑ 125.7ⓐ 125.3ⓒ
TOWER-257.8 119.2 120.05ⓐ 122.4R **GND CON**-121.9 Opr 1500–0700Z
SAN DIEGO DEP CON-290.4 125.3
VFR ADVISORY SVC-Ctc TOWER 119.2
COMM REMARKS-ⓐ 341°–269°. Ⓑ 270°–308°. ⓒ 309°–340°. ⓐAlso used for touch and go ldgs Rwy 10L–28R.

Fig. 1

Fig. 2

AERODROME/FACILITY DIRECTORY 71

BIG CITY .INTL. ILL. 41°59′N 87°54′W GMT–6 (–5DT) **H–3, L–23, A–1 (KORD)**

P (AFRES, ANG) 667 BL4, 5, 6, 7, 8, 9, 10, 11 H116 (CON) (S100, T185, TT350)
JASU-7(A–1), 6(C–26), 2(C–26B), 1(MD–3), 1(MA–1)
FUEL-A+J4, O–123–128–133–148 (NC–C1A1A+1TATA1) HPOX
AERODROME REMARKS-Designated HDTA–See Sec II FLIP Planning for rqr reservations btn 2100–0200Z (DT 2000–0100Z). Acft equipped with only 4, 8 or 10 chan VHF exp extv holding dur IFR. Acft not equipped with dep freq exp gnd delay on IFR dep. Rwy 18 tkof not auth, ldg permitted twin eng prop or smaller when wind less than 20 Kt, over 20 Kt all types exc turbo-jet. Rwy 36 ldg not auth, tkof at pilots discretion. CSTMS avbl 1400–0215Z (DT 1300–0115Z) Mon–Sat. Rwy 4R–22L & 9L–27R grooved.
(AFRES)–PPR exc AIR EVAC til 0600Z (DT 0500Z) 16 Jul. Clsd on all legal federal hol. Opr 1400–2300Z (DT 1300–2200Z) dly. Ltd tran alert svc avbl. Tran acft requiring maint will be recovered by home base. Tran pilots requested to call O'Hare Base OPS (AUTOVON 930–2503) for inbd briefing. Special DEP briefing avbl at Base OPS btn 1400–2300Z (DT 1300–2200Z) dly.
(ANG) OFFL BUS ONLY. Tran alert svc not avbl.
COMMUNICATIONS-(SFA) (UNICOM 123.0) (ATIS 135.15 113.9) (TIE-IN FSS CHICAGO)
● **APP CON**-353.9ⓒ 363.8Ⓑ 125.7Ⓑ 119.0ⓒ 134.4Ⓑ 128.45 126.2 124.35 110.1T 109.7T (E)
TERMINAL CONTROL AREA-See PROCEDURES SECTION.
O'HARE TOWER-236.6 388.0 269.5 118.1 126.2 120.7 110.1T 109.7T (E)
GND CON-348.6 121.9 121.75
DEP CON-337.4ⓒ 269.5ⓒ 290.2ⓒ 127.4ⓒ 125.4ⓒ 125.0ⓒ 126.05ⓒ
CLNC DELIVERY-121.6
RADIO AIDS TO NAVIGATION-(VOT 112.0)
(L) BVORTAC ORD 113.9 Chan 86 41°59′16″N 87°54′17″W At Fld
VOR unusable
030°–070° beyond 14 NM
070°–080° beyond 18 NM
080°–100° beyond 9 NM below 7000′
145°–175°
175°–190° beyond 5 NM below 3500′
225°–245° beyond 10 NM below 6000′
250°–275° beyond 17 NM below 4000′
250°–275° beyond 30 NM below 7500′
275°–305° beyond 10 NM
340°–360° beyond 10 NM
020°–040°, 065°–200°, 270°–315°, 340°–350°
TACAN az unusable
VHF/DF
MEDINA NDB (H–SAB)Ⓑ ME 350 41°58′04″N 88°01′35″W 088° 4.8 NM to Fld.
INDIAN LOM ID 385 41°54′17″N 87°48′22″W 318° 6.0 NM to Fld
LIMA LOM OH 368 42°04′09″N 87°59′27″W 138° 5.2 NM to Fld
PINE LOM HN 230 41°56′09″N 87°57′51″W 038° 3.6 NM to Fld
RIVER GROVE LOM RV 257 41°53′40″N 87°49′35″W 318° 5.6 NM to Fld
ROMEO LOM OR 394 42°03′29″N 88°00′34″W 138° 5.3 NM to Fld
TAFT LOM IA 414 41°59′04″N 87°47′21″W 268° 4.5 NM to Fld
Rwy 27R BC unusable.
348.6 306.2 236.6 126.2 125.7 125.4 122.6R 120.7 119.5 119.0

at Civil Airports

HELICOPTER squadrons with utility missions have many occasions when pilots are required to operate from civil airports. This article is primarily for H-3, H-46, and H-53 pilots, but many of the problems discussed will apply to all helo drivers.

Your Mission. You have just been assigned a mission to carry a congressman, who is of course a senior member of the Armed Services Committee, on a goodwill tour. You will pick him up at Local Regional Airport, take him to Podunk Municipal, and then to his ultimate destination, Big City International Airport.

The first thing you do is break out the maps, charts, and FLIP documents to find out what to expect at these fields. For example:

- Local regional airport (see Fig. 1).
- Podunk Municipal. No information. Nothing in the VFR/IFR Supplement. It's not listed anywhere. So, a phone call is made to Podunk – and come to find out, the airport is a grass field. It has one runway, 2500 feet by 100 feet, and the UNICOM is down. Since you're UHF only, you couldn't have communicated with anyone anyway. You are told to come on over with the congressman and taxi up to the shack when you arrive.
- Big City International (see Fig. 2).

The Flight. It's a beautiful day, and off you go. Starting about 10 miles out, you try to contact Regional tower. After repeated attempts, the tower comes up with, "Hi, there, Hotel Whiskey, thought you were on VHF." Then he gets irate when you tell him you're 3 miles south. You don't bother to reply when he says you were supposed to contact him 5 miles out, but you get a clearance to land. The tower adds a caution about wake turbulence from a departing Eastern 727.

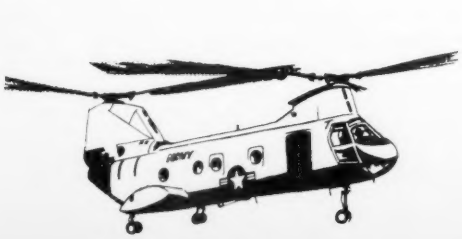
The last transmission ought to get your attention. Generally, one of two things will happen to the helo trying to drive through wingtip vortices. If you hit it perpendicularly, you'll receive a sudden jolt, followed by a few seconds of severe vibrations caused by your rotor disk being knocked out of balance. You'll wonder what you've hit. You might wonder also if you've thrown one or more blades.

If you hit the turbulence about parallel, you're in for the wildest yaw/roll/pitch conniptions you've ever read about. The initial shock, however, will be less than the *wham* of the perpendicular entry. Whichever, you'll be mighty busy trying to bring your bird back into balanced flight. Flying through the trailing vortices of heavy jets is highly dangerous and should absolutely be avoided.

After landing, you'll immediately notice something unusual. Those taxi lights aren't flush or just a few inches high. Civilian fields do it differently. They raise them about 3 feet. It would be embarrassing, and mighty difficult to explain, if you happened to be impaled on a taxi light.

Also, the taxi director, used to Bell-type helos, will try to park you way out where you can't get into any trouble. Needless to say, the congressman won't enjoy a 2-mile hoof. So, diplomatically, ease in closer – with the taxi director's help. One thing to avoid is being parked up tight against a building or fence. (Civilian taxi directors think that you can taxi sideways and backwards just as the helo is able to fly.) Then, be prepared for people, ramp equipment, or anything to come right in close while those big blades are turning. They don't wait. They don't consider it dangerous, and you have to be careful on the controls.

Continued



Congressman and Aides Arrive. You wonder, casually, while taxiing out, if one of the two or three gents who boarded is really a congressman. He didn't show, neither did anyone ask him for, an ID. Perhaps it's better to ask for an ID than to have some guy walk forward after you're airborne, stick a gun in your face, and say, "We're going to Havana."

Podunk Airport. It comes into sight, just over some high-tension wires, smack between a heavy industrial complex and a residential area of apartments and high-rises. It'll be duck soup for you in a helo, but you wonder why *Pipers* and *Cessnas* aren't sticking out of windows here and there. Most small, uncontrolled airports have left-hand traffic patterns for light planes; so look around, then look again, because even if they see you, their reactions are not predictable.

You set up your approach for a slow roll-on landing, and you can expect a surprise when you touch down. It won't roll. Somehow or other, when mother nature grows grass, she doesn't take into consideration that 20,000 pounds of helo distributed among the gear is supposed to be able to roll. So, set 'er down easy, and if you haven't hit the spot where you want to park, you'll have to air taxi to wherever you want to go.

It's too much to expect that there won't be other light aircraft around, so be sure to remember that the winds coming down from those big blades make like 100 knots and those light birds fly at 50. A rule of thumb is to avoid any parked aircraft by 200 feet. Another little matter to remember is not to fly over any gravel, or your rotor wash will play havoc by peppering any nearby surface.

One little item before you shut down; can you restart when ready to depart? You H-46/H-53 pilots are strictly no sweat, but if you're flying an H-3, it could be a mite touchy. The last thing you can expect at a small civilian field is an APU. APU? Why some fields don't even have a battery. So, it wouldn't hurt for you H-3 pilots to carry an extra battery pack along. (Ever hear about the guys who got an H-3 stuck on the White House lawn for 2 days until a battery showed up?)

You can expect the congressman to tell you or send word that as long as you're there, it would be good public relations to show the local folks your helicopter.

Your eyes light up when you spot a honey in hot pants and halter, and natch, you decide to check her out. Don't forget though, while you're putting on some smart moves with the 40-D dolly, her brother and his friends will be inside the helo. They'll want to supplement their cub scout pack with things from your first aid kit, or they'll be practicing up to pass their toggle switch merit badge or trying to remove those neat "coolie hats" on top of the cyclic for their sisters' Barbie and Ken dolls.

It was on one of these flights/demos that McGinty's Law came into being. It says, "Anything that isn't bolted/riveted down will disappear; and any switch that can be switched will be switched." Preflight before departure like you've never preflighted before.

When the congressman, his aides, and half the town come to see him off, arrange with the nearest state trooper to keep everyone back at least 50 yards. Don't even consider engaging because as sure as you do, they'll raise one or more hands to wave goodbye just as your blades begin to whirl.

Ah ha! You have now overcome most obstacles and are airborne on the last leg to BCI (Big City Int'l). You ask your copilot to keep a sharp eye out for a prominent landmark so you can call before entering the TCA. He does, you do, and Approach comes in loud and clear with vectors to the airport where you'll say adios to your VIP. After Approach turns you over to BCI tower, you'll be cleared to land; and unless you're very lucky, they'll want you to taxi about 4 miles to get to Jones Aviation, or wherever you're going.

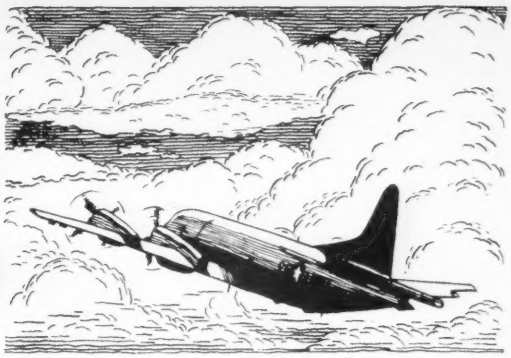
Major airports have one-way taxiways that run for miles – behind hangars, between hangars, alongside hangars. You can also expect it to be blocked by parked aircraft, ground equipment, closed gates; and worst of all, your route might even go *through* a hangar. If you're blocked and have to shut down, fold your blades, and get turned around. (Don't blanch, you're not the first.) Before doing all that, you must resist any temptation to make like Superman, straight over the obstruction. (You can't add to your list of phone numbers in jail.)

So, OK, you did make it to Jones Aviation, and your VIP has departed. Now, you have to get out; at least you have to get somewhere to take off. Three hundred-foot VTOs are verboten. One human trait will stand you in good stead – patience, lots of patience. Eventually, you'll find a suitable place to take off, and the sigh you release when you're airborne and safe at altitude won't be heard. Head for Homeplate and let thoughts of nice, safe jobs like night dipping, VERTREP, minesweeping, or a SAR in I-Corps race through your mind. ◄

The world changes so fast that you couldn't be wrong all the time if you tried.
Ace L.

By LCDR R. S. Hopewell
ASO VP-30

Minimum Control Speed Air-Vmc(Air)



THERE has been little said or publicized about the mysterious aerodynamic phenomenon known as Vmc Air (hereafter referred to as Vmc). And oftentimes, what has been said in wardrooms and the like has not always been accurate. NATOPS does not devote a great deal of print to this subject, but what information there is, is good. "Vmc is the minimum speed at which *directional control* can be maintained in the air with the most critical engine(s) inoperative," so reads the big blue manual. This means quite simply that if the aircraft's airspeed is slower than Vmc, you cannot fly the bird straight ahead without making some changes to the flight envelope; i.e., bank angle and/or SHP (shaft horsepower). And, of course, we all know that because of torque and asymmetric thrust, the No. 1 engine is considered the most critical engine in P-3 aircraft.

There is a very slight decrease in Vmc in the P-3 as gross weight increases. A change in gross weight also brings about a change in the stall speeds, but since Vmc and stall speed are not related and do not result in the same flight characteristics, the two should not be confused. Just because your airspeed is less than Vmc, it does not follow that you will stall and fall out of the sky, unless, of course, Vmc is less than stall speed. In this case, naturally, you will stall the aircraft before reaching Vmc. NATOPS reads "flight should only be conducted with the higher of the two speeds as the governing factor." It's worth repeating: *directional* **control of the aircraft cannot be maintained when the airspeed is less than Vmc.**

Now, let's look at two of the variables in Vmc: SHP and bank angle. Did you know that the difference between Vmc of an aircraft with 4600 SHP set and an aircraft putting out 2500 SHP is approximately 14 knots? This is true, assuming the two planes have the same bank angle and are at the same altitude. Vmc increases as SHP is increased. By the way, 4600 SHP (or 4300 SHP) to 2500 SHP is the range of our Vmc charts in the NATOPS manual.

Optimum bank angle is 5 degrees toward the operating engines, and any deviation away from this favorable bank *increases* Vmc by 2.6 knots per one degree. As NATOPS explains, an aircraft banked 5 degrees toward the inoperative engine(s) causes Vmc to increase 26 knots (10 degrees deviation x 2.6 = 26 knots). Therefore, proper bank angle (optimum) is a *must* when flying with engine(s) out.

The average leg of the average pilot cannot hold rudder during engines-out maneuvers with a great deal of power applied on just two engines (about 180 ft/lbs is needed). And our NATOPS gives us guidance in this direction: "Use of rudder trim will provide additional assistance in maintaining a straight flightpath as normal pilot effort will not be sufficient to drive the rudder to its full throw." It's back to basics – TRIM, TRIM, TRIM!

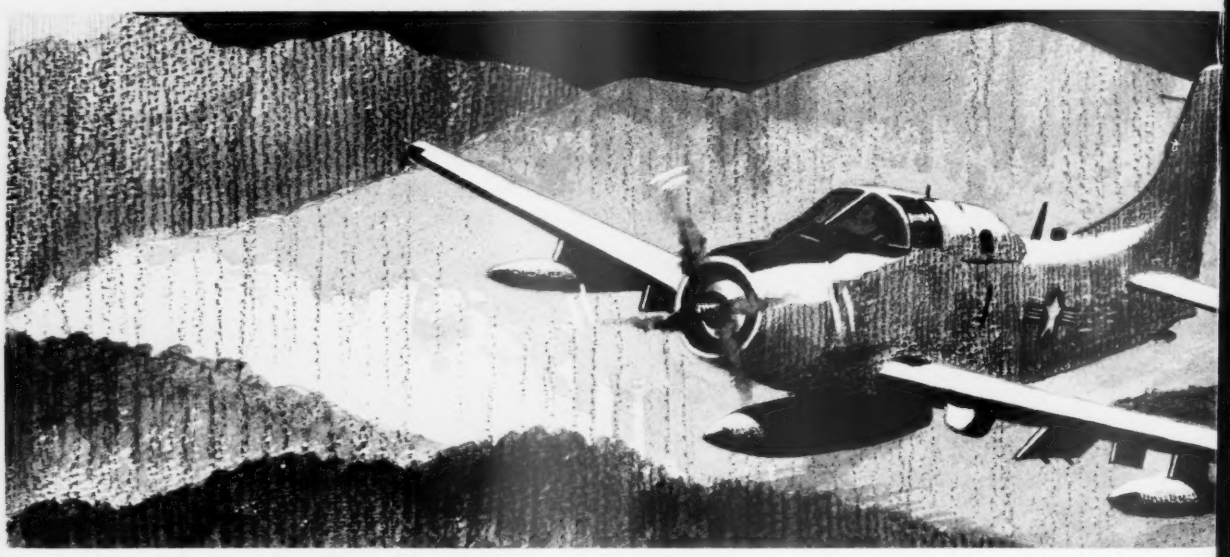
A third variable is density altitude, which could be considered *not* appreciable. Vmc *decreases* as density altitude *increases,* but only at the rate of one little knot per 1000 feet of altitude. Altitude also affects SHP available, and its effect is more intense on SHP available than on Vmc. On a standard day, SHP available will decrease as altitude increases: -14 engine SHP range, from SL to 8000 feet, is approximately 4600 SHP to 4100 SHP. For the -10 engine, SHP will range from 4000 to 3500.

Now, let's discuss what should be done if two engines are out on the same side and we find ourselves going slower than Vmc. First of all, the optimum bank angle should be applied, if not already. If airspeed is still less than Vmc or you are unable to reach the optimum bank angle, do as NATOPS suggests: "Directional control can be regained with the least possible overall power reduction by reducing power on the outboard operative engine only, leaving the inboard at full power." But heads up, men, when you do this, for caution should be given to stall speed when reducing power. Don't let the aircraft slow so much during this power reduction that airspeed decelerates into the stall region.

Hopefully, Vmc Air is now less of a phantom, and now you have a better understanding of the facts. Remember, you can beat Vmc Air by the following: the optimum bank angle should be maintained, the aircraft properly trimmed, and power reduced on the outboard operative engine (if necessary with two engines out), all the while maintaining airspeed above stall. ◄

GET-

The following episode occurred a few years ago in a Navy, single-piloted, multiplaced aircraft (A-1). The events of the flight have neither been recorded in the files of the Naval Safety Center nor have they ever been told to anyone in complete detail. Perhaps, by relating the story, some pilot will think twice about making these same mistakes.



THE FLIGHT purpose was to transport another squadron pilot to Coastal AFB. Also, an enlisted man from the line asked to go along for the ride as a passenger. He was neither an aircrewman nor a qualified plane captain.

Since it was winter, the flight was planned from NAS to remain over land so as to avoid the requirement for wearing antiexposure suits. The first leg was basically uneventful, although the weather had been getting worse all along, and an actual GCA was flown into the AFB. After dropping off the extra pilot, the passenger climbed into the right front seat, and we took off for NAS Windy for a refueling stop. Enroute, the TACAN began to unlock occasionally, but no thought was given to asking for repairs.

While the aircraft was being refueled, I was asked by NAS air terminal people to give a ride to two blackshoe enlisted types who were enroute to a skiing weekend up north. No problem. The plane captain was asked to make sure they got checked out in ditching, bailout, and other emergency procedures. The return leg to Homebase was again planned over land vice the overwater route. After all, with only one engine, why take chances?

By the time we got airborne, it was dark, and the weather continued to deteriorate. Right after takeoff, Center advised that the filed route of flight was no longer acceptable and tried to get me to go over water. "No dice," I said. "Request we be rerouted further inland." They replied I would probably have to be rerouted practically all the way to the Rockies to avoid the stack of aircraft over Big Coastal City. We argued back and forth, but it was obvious that this was going to be the route. At least I had plenty of gas, having just refilled the internals as well as the tanker. I would probably end up doubling my estimated time enroute.

No sooner did all this happen than the old TACAN really started spinning. Oh, yes, we were under actual instruments since takeoff. No sweat, the friendly controller started issuing radar vectors, and I cranked the ADF off the local radio station and started trying to find a navaid.

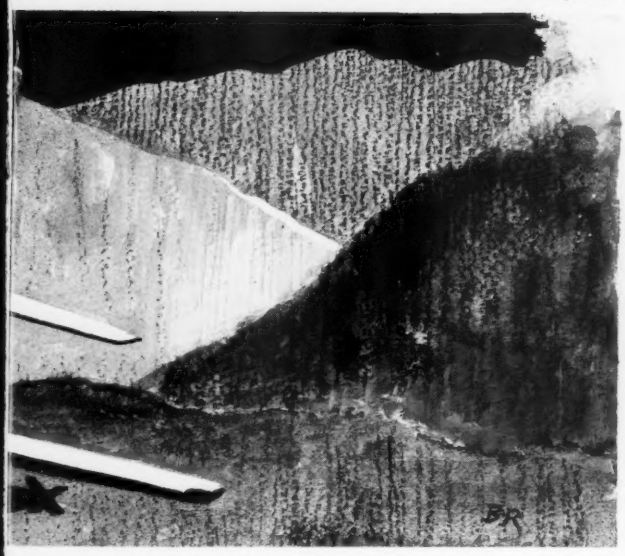
Not bad, so far. Nighttime, actual IFR, loss of primary navaid for the most part, and an unbelievable rerouting inland. What else could go wrong on this winter night? Icing!

I don't think I mentioned it, but this bird didn't have any of that fancy anti-icing equipment, and ice was forming on the wings and windshield. Remembering the rather serious adverse effects of solid water on airfoils, I immediately asked Center for a change in altitude to get out of the ice.

Unfortunately, all Center could tell me was that everyone was having trouble with the weather and they didn't know to what altitude I could go. They told me to expect changes in routing further inland, and I was

HOME-ITIS

Anonymous



cleared to Metro for advice.

Metro was no help at all. They told me that at my flight level, it was just about at the freezing mark, but above and below me it was *below* freezing. Upon return to Center frequency, they recommended that I remain at that altitude (no other ones were clear) and gave me a clearance further inland. They again requested that I go over water to get out of the traffic mess.

They were unbelievably busy and weren't giving me all the radar vectors I needed to comply with the new clearance. A quick check of remaining fuel showed I could never make it to my destination via the new route. About this time, fuel considerations, Center's pressure for me to do something on my own for navigation (never could identify a station on the ADF), the continued buildup of ice on the wings, and some lights from the ground (shining up through the clouds) led me to decide that I was going to have to do something besides keep plumbering along.

So, I cancelled my instrument flight plan and descended to VFR underneath the clouds and orbited the first thing I saw – an airport. Of course, Center couldn't figure out how I was VFR when everyone else was zero-zero. I told them I was in a clear spot. Then they asked me the obvious question: how was I going to continue VFR beyond that point? Never fear, I responded. There must be a way.

After some minutes orbiting the airfield (probably within their airport traffic area), I identified it on my chart and discovered Hidden AFB about 20 miles away.

Knowing that the Air Force was always cooperative, I called AFB Approach for help (no, I didn't declare an emergency). I explained I was VFR underneath trying to get home but unable to comply with any instrument flight plan more sophisticated than radar vectors. Yes, they did have me on radar. Yes, the front was between me and Homebase, and 25 miles away, the weather was VFR again. What were my desires?

I briefly considered landing at the field beneath me or at the AFB, but the runways were covered with new snow. And that nice VFR weather was only 25 miles away. So, naturally, I elected to go home. Only, at what altitude? Good question. Back up there was the demon ice. I quickly looked at the chart to figure out the MOCA on the nearby airway. Approach asked if I wanted vectors to ahead of the front. Rog, I responded. Altitude, VFR underneath – but, boy, did that sucker hole end soon.

I turned to my heading and used military power, hoping to make the next 25 miles the shortest. Continuing to descend, I managed to maintain "VFR," or at least I could *occasionally* see the lights below. Any other aircraft in my area? No, sir. I wonder how low I could go below MOCA to keep "VFR" and still not hit trees or powerlines.

Powerlines! I suddenly remembered flying around this area in daylight and seeing a few big hills with powerlines on top. At the same time, the engine stopped. I had made the classic dumb mistake. I had run the auxiliary tank dry without planning on it. As my heart rolled around my mouth with visions of hitting a mountain, I realized what had caused the engine to fail and switched back to main fuel tanks. I also zoomed up to a more comfortable altitude (clearing powerlines), said to hell with icing and the fact that I wasn't filed IFR, and added full power.

Finally, I broke out, saw nothing but clear skies ahead, and thanked AFB Approach. From there, it was a short, night VFR flight back home where an uneventful landing took place.

A rather shaky JO climbed out of the cockpit that night. Knees not quite steady, I walked toward the hangar with my three passengers. These men, mercifully, had absolutely no idea how close they had come to augering in.

Still in my flight suit, I went home, wondering. When I greeted my bride, she saw that I was still without much color. I made some remark about that night's flight being a real winner. I told her it had taken all my experience to get home. But, I still wonder . . . did I use that experience correctly? You be the judge. ◄

Letters

The fervent wish of today's dieter is to be weighed and found wanting.

Ace L.

Re "Don't Send a Boy"

NAS Bothcoasts – In the NOV '74 issue of APPROACH I spotted an article in Air Breaks titled "Don't Send a Boy." I took special interest because I happen to be a member of the unit involved.

My first impression was one of anger because the basic incident of the unfortunate ground accident is correct. Our U-11 was pulled into a C-118, but that's the only remark totally correct and not editorialized or blown out of proportion.

Let me point out a few facts you presented.

- The SOP for towing a U-11 doesn't call for any mechanical form of tow tractor. The nosewheel towbar is specifically designed for hand use. *(You're right.)*

- Nowhere in my recollection of the incident had it been mentioned or reported that the senior petty officer in Maintenance Control told the E-4 to "get lost." I find this distasteful and a libelous effort on your part to overdramatize the incident. *(The source document read, "The E-4 in charge had requested from Maintenance Control but didn't receive qualified personnel to move the U-11 into the hangar . . . ")*

- Whatever the decision of the CO, I believe his efforts to low key the unfortunate incident is a proper one. Everyone at some time has lapses. All personnel are now totally aware of the proper procedures in the ground movement of aircraft. No scapegoat is required to further amplify this incident, as there were other errors in judgment not reported in your article. *(Again, the source document said, "The combined negligence and laxity of the three men caused the U-11 to become involved in two separate mishaps in a matter of minutes.")*

If the credibility in your publication is to continue, I feel the sensational type of journalism should decrease. Your writer's use of such phrases as *grossly negligent* and *whitewashed* tend to diminish his reporting and increase the belief that he's the almighty good guy who does no wrong. Has the writer future designs on writing for *True Confessions?*

1st Lt F. L. Hauck, USMC

- **The writer, whose background in aviation goes back to 1940, is highly emotional about Delta Sierras and when he read the report of the U-11 mishaps, he just got carried away in his reporting. Would you believe a very similar incident just happened on the other coast?**

Keep reading APPROACH and by all means h-o-l-l-e-r when you see something you don't think is kosher.

Survival Gear

Anyplace, USA – This detachment inspects, tests, and repacks survival equipment for three operating squadrons. After receiving many life preservers from one particular squadron with paper clips in place of nylon release pins, nylon release pins pushed through retaining loops, and knots tied in the cords, we flight equipment types performed a spot inspection of the squadron.

We found survival equipment stashed in the bottoms of wall lockers with anything from gum wrappers to safety shoes stacked on top. One preserver had been opened and stuffed closed in hopes of proper functioning in time of need. Another had the mysterious paper clip routine. All in all, very little concern was shown towards survival equipment.

Proper storage and care of survival equipment prior to use is an essential element in the performance of that particular piece of equipment. As soon as anything less than excellent performance becomes acceptable, degradation of the entire operation begins.

Name Withheld

- **We understand that since your spot inspection, care of personal flight equipment in your area has noticeably improved. Everybody take note. How do *you* handle *your* personal survival equipment? Carelessly or with care?**

Delta Sierra

NAS Norfolk – Others will no doubt comment, but it seems you get a big DELTA SIERRA for a change instead of dishing one out. I picked up the most recent issue of APPROACH, and what met my eye on the cover? November 1973! And what was inside on each page? November 1974! Lizzardus ye stompus!

Former Friend

- **So what'd you want – a 1973 on each page?**

"A Voice from the Past"

FPO, New York – Not long ago, I was out on a postmaintenance check flight in an A-4C and experienced a massive engine failure. My ejection and subsequent water pickup by helicopter were, in my estimation, picture perfect.

I strongly maintain that credit for the success of this evolution must go to the training I received in flight physiology at Pensacola and Corpus Christi.

Long ago, I decided that due to my height the "alternate" *(lower ejection – Ed.)* handle was my primary means of actuating the ejection seat in

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FLIP Changes

THE Defense Mapping Agency, St. Louis, MO, has notified the Naval Safety Center of the following change:

New FLIP Planning

There's a new FLIP Planning Document coming. It will appear in a completely new format in the 30 January 1975 issue. It's better, simpler, neater, and will be much easier to use, mainly because it eliminates duplication and is functionally arranged into parts: General Planning (GP), and Area Planning (AP).

The *General Planning Book* contains general information on all FLIPs, explanation of the divisions of the airspace, meterological data, time signal information, terms and abbreviations, and worldwide conversion tables. Much of the information duplicated in each of the current operational Section IIs has been transferred to this one section. This includes information on flight plans and pilot procedures that has common, worldwide application. In addition, information pertaining to ICAO procedures has been transferred to this section, eliminating the present Section III.

The *Area Planning Books* contain planning and procedural data for a specific geographic area of the world. They are divided into Theatre, Regional, and National Procedures, in which information pertaining to any particular country that differs in any aspect from standard ICAO procedures is shown by exception only. The current Section IIA and B remain relatively unchanged except for titling and chapter format. The new titles are listed below:

General Planning.

North and South America Area Planning AP/1.

North and South America Area Planning AP/1A Special Use Airspace.

North and South America Area Planning AP/1B U.S. Military Training Routes.

Europe-Africa-Middle East Area Planning AP/2.

Europe-Africa-Middle East Area Planning AP/2A Special Use Airspace.

Pacific-Australasia-Antarctica Area Planning AP/3.

Pacific-Australasia-Antarctica Area Planning AP/3A Special Use Airspace.

an A-4. I started to reach for it immediately. Fortunately, before I pulled that handle, a droning voice from long classroom hours started in my head . . .

"You've got time . . . Okay, get your butt back in the seat, feet on rudder pedals, shoulders back, head upright . . . Now that you're in the proper position – GO!"

That voice, the one that seemed endless in class, came through when it counted. My thanks to all those involved in this training. Keep on droning. It's well worthwhile!

LT Ronald S. Hill
Fleet Composite Squadron EIGHT

● Bee-yoo-tiful. You instructors keep on "droning." You pilots and crewmen keep on taking it in.

Salvage Crews Need Love, Too

Worcester, MA – Wait one! I think I see a coverup.

Let's examine the circumstances in your "Left of Center" article about the P-3 that slid off the taxiway. You gave the crew a lot of credit for their actions once the aircraft left the taxiway and became stuck in the mud, but you shut your eyes to how it got there.

The field opened at 1800 and 45 minutes later the P-3 was bogged down in mud. Sounds like the PPC was in a hurry. Next, the time, 1845, in winter months means dark. Too bad. In good lighting conditions the pilot might have noticed the plowed area was offset 6 feet to the left.

Also, he was taxiing between 5-6-foot snowbanks on an inch of ice. This can be done in a P-3, but the risks involved make it unwise unless you have an urgent requirement to get airborne. If the runway was half as bad as the taxiway, can you imagine trying to abort?

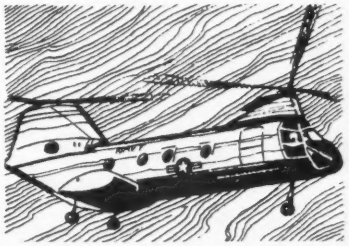
Instead of the questionable attempt to launch, the PPC could have elected to postpone his flight until the next day. This would have given the airport crew time to do a better cleanup and the flightcrew would have had the benefit of daylight conditions.

Had this been done, the incident that was not an accident might not have been an incident.

I'm surprised that you weren't asking the same questions instead of glowing about the salvage crew.

LT John J. Marshall
NROTC Instructor
College of the Holy Cross

● We seldom take an operational pilot to task for any phase of flight operations which is within the bounds of reason. The field was open and the PPC decided to go. When he found himself stuck, he didn't complicate matters by trying to blast his way out. He accepted the additional delay, hollered for help, and, in an orderly way, made the most of his plight – without damage to the aircraft.



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CREDITS/Introduced to the Fleet in the fifties, the P5M-2 *Marlin* served the Navy well. This nostalgic look at the near history of Naval Aviation is by staff artist Blake Rader.

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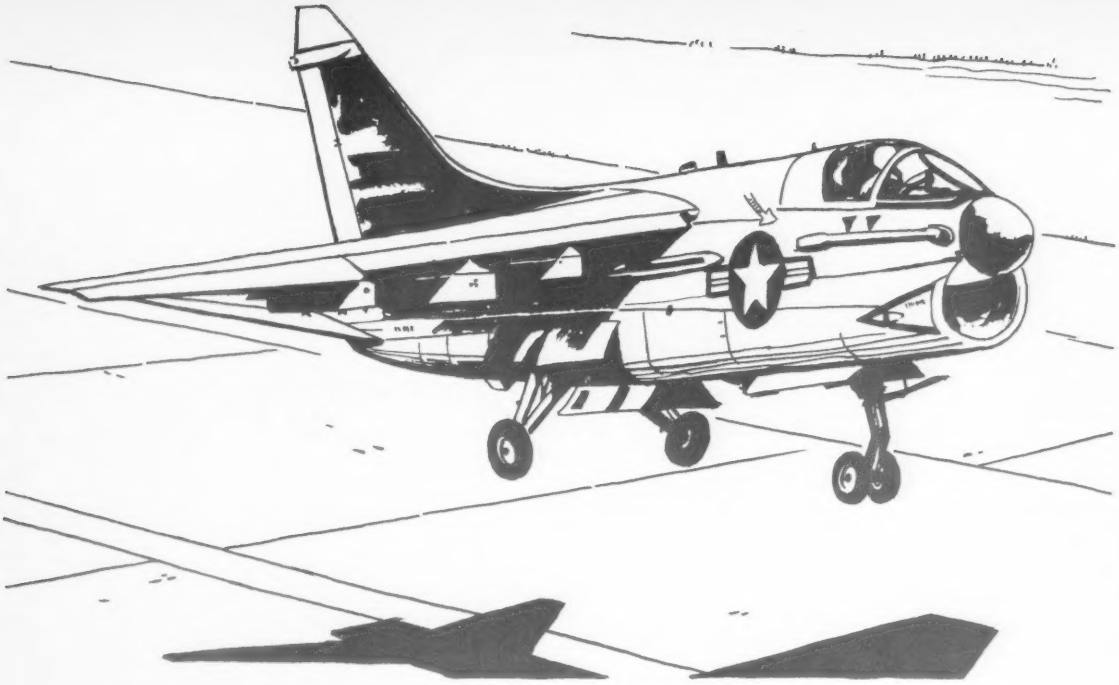

Feathered Compressor

ON 27 May 1974, LT D. K. Simmons, USN, and LT C. W. Gilluly, USN, both from VA-122, prepared to take off from Tinker AFB in their *Corsairs* and return to Lemoore from an instrument training flight. This leg was to be a sandblower into Buckley ANGB. Both pilots were Fleet-experienced, but LT Gilluly was transitioning to the "echo" from A-7A/Bs in VA-122's *Corsair* College.

Engine runup and section takeoff roll were executed normally, with both aircraft raising the landing gear after safely airborne. As the gear was raised, LT Simmons heard and felt a loud bang. The aircraft shuddered violently which led him to suspect the landing gear had malfunctioned. He retarded throttle to remain below gear speed and continued a climbing left turn, but was unable to stay with the flight leader.

Airframe shudder continued, and the engine started to make a high-pitched, whining sound with fuel flow fluctuating from stop to stop (0-15,000 PPH). Manual fuel was selected immediately, the EPP handle was pulled, and the generator was secured to afford maximum hydraulic pressure, if needed. By now, any throttle movement caused fuel flow surge to 10,500 PPH followed by a rapid drop to 1500 PPH.

LT Gilluly recognized that his wingman was having difficulties, passed the lead, and noted LT Simmons' EPP out and his wing fuel dumping. The landing gear wasn't the problem.

As luck would have it, LT Simmons lost his radio shortly after takeoff and couldn't tell anyone the nature of his difficulties. He broadcast in the blind that he would be making an emergency landing and turned for the runway.

At the 135, he was at 4500 feet, 200 knots, with power set at 85 percent and fuel flow indicating 1500 PPH. S-turning to clear a densely populated area, LT Simmons executed a smooth precautionary approach, lowering the gear at about one-fourth mile.

LT Gilluly had observed the aircraft configuration, noted a HEFOE signal for engine, and deduced what immediate action was required. He obtained emergency clearance for the stricken *Corsair.*

Both pilots landed safely. Postflight inspection found long, black feathers in the engine compressor and bent compressor blades. It was obvious that a large bird had been ingested shortly after takeoff.

LT Simmons is commended for his fine airmanship; LT Gilluly for his calm, rational thinking, and both aviators for saving a valuable airplane. Well done! ◄


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